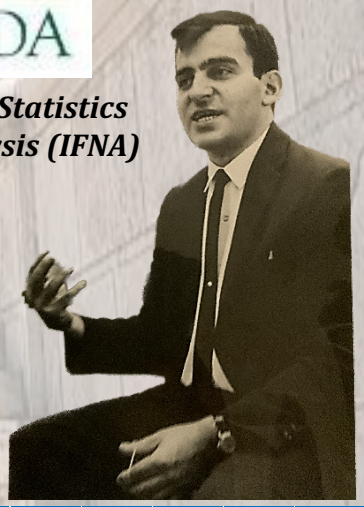
Dr. Chris P. Tsokos







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Education
Research Interest
Academic Experience
Industrial Experience

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RESIDENCE

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EDUCATION

Ph.D.	Probability and Statistics University of Connecticut, 1968 Studies performed while a full-time faculty at the University of Rhode Island
M.S.	Applied Mathematics University of Rhode Island, 1963 Studies performed while a full-time employee of General Dynamics Corporation
B.S.	Engineering Science and Mathematics University of Rhode Island, 1961
Special Studies:	Massachusetts Institute of Technology—Operations Research Pennsylvania State University—ASW-Anti Submarine Warfare: Underwater Acoustics

RESEARCH INTERESTS

Statistical Analysis and Modeling
Time Series Analysis and Forecasting Systems
Reliability Analysis—Ordinary and Bayesian
Ecology-Biostatistics/Biomathematics
Operations Research/Econometric Modeling
Stochastic Differential and Integral Systems
Legal Statistical Analysis and Modeling
Mathematical and Statistical Modeling of GLOBAL WARMING
Statistical Analysis and Modeling of CANCER DATA
Operations Research
Probabilistic Modeling
Quality Control Analysis
Software Reliability
Stochastic Differential Games
Cyber Security

ACADEMIC EXPERIENCE

University of South Florida

Department of Mathematics and Statistics: Distinguished University Professor, Mathematics and Statistics, 1972 to present, named Distinguished USF Scholar in 1975. Activities include developing and teaching graduate and undergraduate courses in Applied Statistics, Theoretical Statistics and Probability Theory, directing dissertations and theses of graduate students and research, member of the Graduate Faculty, Scientific Affiliate of the Center for Behavioral Medicine and Community Psychology. Director of the Graduate Programming in Statistics until 2015.

Virginia Polytechnic Institute and State University

Associate Professor of Statistics, Department of Statistics and Statistical Laboratory, Blacksburg, Virginia, 1969-1972. Activities included developing and teaching graduate and undergraduate courses in Applied and Mathematical Statistics, Probability Theory, Stochastic Processes, Bio-assay and Time Series, directing dissertations and theses of graduate students and research.

University of Rhode Island

Department of Mathematics, Kingston, Rhode Island. Assistant Professor of Mathematics and Statistics, 1963-1969; activities included teaching graduate and undergraduate courses in Applied and Theoretical Statistics and Probability Theory, academic advising for mathematics majors, directing graduate students and research.

INDUSTRIAL EXPERIENCE

General Dynamics Corporation

Electric Boat Division, Groton, Connecticut, 1961 to 1963. Project Engineer, responsible for all phases of assigned projects in mathematical and statistical modeling, including not only the technical aspects, but also maintaining progress of work on schedule and within budgeted costs.

See Also

- Private Industry Advisor and Consulting
- Federal Government Advisor and Consulting



Honors and Awards

HONORS AND AWARDS

- **Distinguished University Professor, USF**
- **Commendation by the United States Navy, Bureau of Ships, for solving certain mathematical problems essential to our ASW systems, 1963.**
- **Sigma Xi**
- **Pi Mu Epsilon**
- **Fellow of the American Statistical Association**
- **Outstanding Educators of America**
- **Outstanding International Educators**
- **University of South Florida Distinguished Scholar Award, 1975**
- **Who's Who in America**
- **Sigma Pi Sigma**
- **Sigma Xi Outstanding Research Award, 1976**
- **Who's Who in the South**
- **Mortar Board, Inc," Society's award for Teaching Excellence, 1985**
- **International Who's Who of Intellectuals**
- **Who's Who in Technology Today**
- **American Men and Women in Science**
- **Men of Achievement**
- **Elected to International Statistical Institute**
- **Who's Who of Hellenic Heritage**
- **Mathematics: Who's Who**
- **University of Rhode Island Alumni Excellence Award in Science & Technology**
- **National Academy of Inventors, NAI, USF**

- **USF TIP Award-Teaching Incentive Program**
- **USF PEP Award-Professional Excellence Program**
- **USF Outstanding Undergraduate Teaching Award**
- **AFGLC Outstanding Leadership Award, 2001**
- **The Pancyprian Award for Education, Freedom and Human Rights, 2000.**
- **Time Warner - The Spirit of Humanity Award, 2002**
- **Certificate of Appreciation for Dedication, Florida Department of Children and Families**
- **Hellenic Voice – Hellene of the Year for 2003: Humanities & Education, Boston, MA**
- **International Leadership Award for Global Hellenism, Athens, Greece, 2003**
- **USCENTCOM – "Enduring Freedom" Award, Hellenic National Defense General Staff Greece, MacDill Air Force Base, Tampa, FL, 2005**
- **International Journal: Neural, Parallel & Scientific Computations, Special Issue in Honor of Dr. Chris P. Tsokos, Vol. 16, March 2008, Atlanta, GA**
- **State of Connecticut, General Assembly – Official Citation, Public Service and Academic Accomplishment Award, April 14, 2010**
- **Strathmore Who's Who 2010**
- **University of Connecticut, 2010 Distinguished Alumni Award**
- **The Hermes Distinguished Professor Award, Philadelphia, PA, April 2, 2011**
- **Barbara Miller Educational Excellence Award, UDC, Tampa, FL, June**
- **Leading Professionals of the world 2013**

State of Connecticut

General Assembly

Official Citation

Introduced by Representative Demetrios S. Giannaros, 21st District

Be it hereby known to all that:
The Connecticut House of Representatives
hereby offers its sincerest congratulations to:

Professor Christos P. Tsokos, 2010 Distinguished Alumnus Award, University Of Connecticut

In recognition of

Receiving The Distinguished Alumnus Award. As A Dedicated And Accomplished Teacher, Mentor, Mathematician, Engineer, Statistician And Author You Have Touched The Lives Of Many Throughout Your Professional Career. Today We Celebrate The Presentation Of Your Richly Deserved Award That Recognizes Your Many Accomplishments, Your Scholarship, Your Prolific Research And Writing In Many Areas, Your Public Service, Your Contributions To "Hellenism," And Other Activities And Honors Too Numerous To Mention. You Exemplify The "Best In Our Academic World" And We Are Grateful To Draw From Your Well Of Wisdom And Guidance. We Wish You Many More Years Of Achievement, Joy, Laughter And Love.

The entire membership extends its
very best wishes on this memorable occasion
and expresses the hope for continued success.

Given this 14th day of April 2010
at the State Capitol
Hartford, Connecticut

by

Christopher G. Donovan
Speaker of the House

Susan Bysiewicz
Secretary of the State



United States Patents

UNITED STATES PATENTS

- Systems and Methods for Detecting Buried Objects

  U.S. PATENT # US 10,175,350 B1

- CYBERSECURITY: Vulnerability Life Cycle Exploitation Timing Modeling

  U.S. PATENT # US 10,650,150 B1

- CYBERSECURITY: Statistical Predictive Model for Expected Path Length

  U.S. PATENT # US 10,659,488 B1

- CYBERSECURITY: Nonlinear Stochastic Models for Predicting Exploitability

  U.S. PATENT # US 10,754,959 B1

- CYBERSECURITY: Predictive Model for Overall Network Security Risk

  U.S. PATENT # US 10,848,515 B1

- HEALTH SCIENCES: Machine Learning Analytics in Real Time for Health Service

  U.S. PATENT # US 11,298,071 B1

- CYBERSECURITY: Reliability of Computer Network

  U.S. PATENT # 11,483,335 B1

- Systems, Methods, and Media for Monitoring the Production Process of a Product.

  U.S. PATENT #12,321,159 B2

US010175350B1

(12) **United States Patent**
Tsokos et al.

(10) **Patent No.: US 10,175,350 B1**
(45) **Date of Patent: Jan. 8, 2019**

(54) **SYSTEMS AND METHODS FOR DETECTING BURIED OBJECTS**

(71) Applicants: **University of South Florida**, Tampa, FL (US); **University of the Sciences in Philadelphia**, Philadelphia, PA (US)

(72) Inventors: **Chris P. Tsokos**, Tampa, FL (US); **Abolfazl Saghafi**, Philadelphia, PA (US); **Sajad Jazayeri**, Tampa, FL (US); **Sanaz Esmaeili**, Tampa, FL (US)

(73) Assignees: **University of South Florida**, Tampa, FL (US); **University of the Sciences in Philadelphia**, Philadelphia, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/021,928**

(22) Filed: **Jun. 28, 2018**

(51) **Int. Cl.**
G01V 3/12 (2006.01)
G01S 13/42 (2006.01)
G01S 13/88 (2006.01)

(52) **U.S. Cl.**
CPC ***G01S 13/885*** (2013.01); ***G01S 13/426*** (2013.01); ***G01V 3/12*** (2013.01)

(58) **Field of Classification Search**
CPC G01S 13/88; G01S 13/885; G01S 13/887; G01S 13/888; G01V 3/12
USPC 342/22
See application file for complete search history.

(56) **References Cited**

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S. Shihab, Waleed Al-Nuaimy, Yi Huang, Asger Eriksen, Neural network target identifier based on statistical features of GPR signals, Proc. SPIE 4758, Ninth International Conference on Ground Penetrating Radar, (Apr. 12, 2002); 135-138.

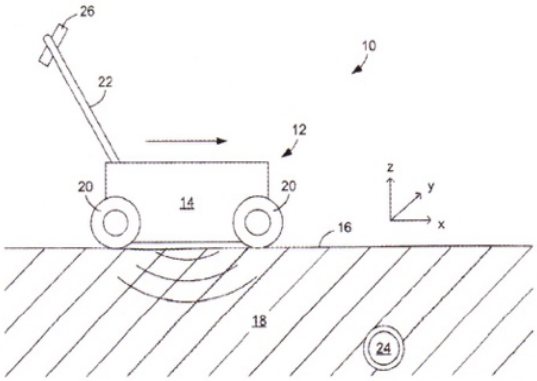
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Primary Examiner — Peter M Bythrow
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP

(57) **ABSTRACT**

In one embodiment, a method for detecting buried objects includes receiving ground penetrating radar (GPR) signals captured at discrete locations along a surface of a medium in which an object may be buried, computing parameters based on the received GPR signals that are indicative of the proximity of a buried object, plotting the computed parameters as a function of location, determining an apex of a hyperbola that results from the plotting of the computed parameters, and designating a location at which the apex occurs as an estimated location of the buried object.

15 Claims, 11 Drawing Sheets



USF Available Technologies

Technology Transfer Office

Automatic Underground Object Detection Using Ground Penetrating Radar Signals

Researchers at the University of South Florida have developed a statistical analysis analytic that enhances ground penetrating radar to predict the presence of buried objects before reaching their actual location and estimate their spatial location with high accuracy.

Ground Penetrating Radar (GPR) is a geophysical method that uses radar pulses to image below the ground. GPR is widely used in detecting underground objects including utility lines, caves, tree roots, land-mines, grave sites, etc. GPR is popular for exploratory purposes due to its non-destructive utilization and fast data collection. However, manual processing of the data is time-consuming and requires expertise. Regardless of advances in equipment, computational power, and techniques, fast and automatic estimation of location and depth of buried objects is still under development.

USF inventors have developed an automated statistical analytic that detects buried objects and estimates their location and depth with high accuracy even in noisy environments. The analytical technique follows a monitoring and decision procedure which significantly reduces the time needed to perform GPR data analysis , making it plausible for real-life applications. Researchers successfully used the analysis tool in a number of scenarios with remarkable results. Real-life testing proved the analytics to be highly accurate in situations where alternate methods failed to perform adequately. Possible applications include detection of UXO, utility lines, rebars in reinforced foundation structures, caves, underground tunnels, and buried bodies. A significant use is the detection of explosives in military applications.

Tech ID # 18A071

ADVANTAGES:

- **Fully automated detection tool**
- **Location prediction and warning before reaching buried objects**
- **Accurate location and depth estimation**
- **Detecting multiple buried objects**
- **Fast run-time, useful for on-site applications**
- **Accurate performance on noisy media**

Automated Statistical Method to Analyze GPR Data for Locating Buried Objects



The Analysis Method Will Enhance GPR Detection Applications in the Military

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US010650150B1

(12) **United States Patent**
Rajasooriya et al.

(10) **Patent No.: US 10,650,150 B1**
(45) **Date of Patent: May 12, 2020**

(54) **VULNERABILITY LIFE CYCLE EXPLOITATION TIMING MODELING**

(71) Applicants: **Sasith Maduranga Rajasooriya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K Hitigala Kaluarachchilage**, Franklin, OH (US)

(72) Inventors: **Sasith Maduranga Rajasooriya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K Hitigala Kaluarachchilage**, Franklin, OH (US)

(73) Assignee: **University of South Florida**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 151 days.

(21) Appl. No.: **15/907,810**

(22) Filed: **Feb. 28, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/464,635, filed on Feb. 28, 2017.

(51) **Int. Cl.**
G06F 21/57 (2013.01)
G06N 7/00 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 21/577*** (2013.01); ***G06N 7/005*** (2013.01); *G06F 2221/034* (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

10,268,660	B1 *	4/2019	Arazi	A63F 13/50
2006/0178887	A1 *	8/2006	Webber	G10L 15/144 704/256
2008/0010225	A1 *	1/2008	Gonsalves	G06N 7/005 706/11
2016/0078309	A1 *	3/2016	Feldman	G01B 9/0203 382/131
2017/0046519	A1 *	2/2017	Cam	G06F 21/577

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Kaluarachchi, P.K., Tsokos, C.P. and Rajasooriya, S.M. (Apr. 2016) Cybersecurity: A Statistical Predictive Model for the Expected Path Length. Journal of information Security, vol. 7, 112-128. http://dx.doi.org/10.4236/jis.2016.73008.

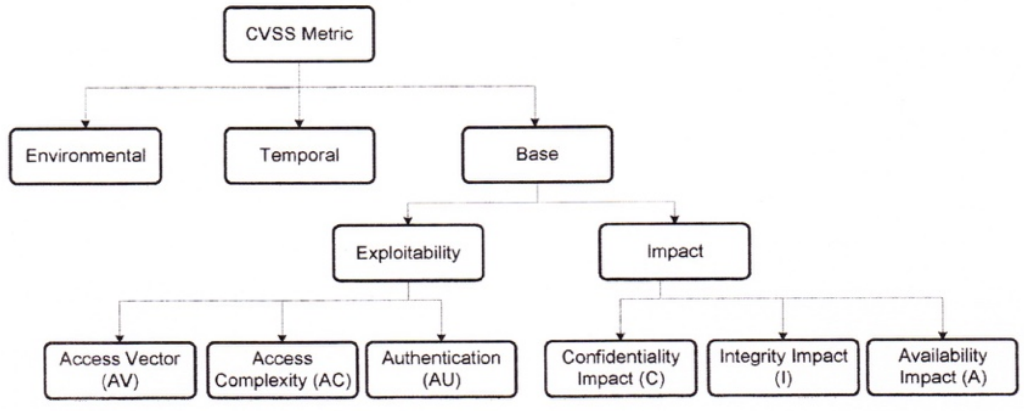
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Primary Examiner — Kaveh Abrishamkar
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP

(57) **ABSTRACT**

According to the embodiments, a statistical model is developed to estimate the probability of being in a certain stage of a particular vulnerability in its life cycle. The methodology with the application of Markov chain theory gives the basis for calculating estimates for probabilities for different stages of a life cycle of the vulnerability considered. Using the developed method, it is possible to evaluate the risk level of a particular vulnerability at a certain time. These developments allow an advantage in taking measures to avoid exploitations and introduce patches for the vulnerability before an attacker takes the advantage of that particular vulnerability.

18 Claims, 13 Drawing Sheets



USF Available Technologies

Technology Transfer Office

Stochastic Modeling of Vulnerability Life Cycle and Security Risk Evaluation

Researchers at the University of South Florida have come up with a statistical model that can give accurate probability of a vulnerability being exploited or patched at a given time.

In computing systems, a vulnerability can be defined as a weakness in software that can be exploited to gain access to certain resources. Vulnerabilities can be relatively difficult to categorize and mitigate. The Common Vulnerability Scoring System (CVSS) provides a way to characterize or define the principal characteristics of a vulnerability. It also provides a way to define a numerical score that reflects the severity of various vulnerabilities. Having a better understanding of the behavior of vulnerabilities with respect to time will offer a great advantage and such understanding will help to avoid exploitations and introduce patches for a particular vulnerability before the attacker takes the advantage.

The proposed statistical model is developed to estimate the probability of being in a certain stage of a particular vulnerability in its life cycle. The methodology with the application of Markov chain theory gives the basis for calculating estimates for probabilities for different stages of a life cycle of the vulnerability considered. Using the developed method, it is possible to evaluate the risk level of a particular vulnerability at a certain time. These developments allow an advantage in taking measures to avoid exploitations and introduce patches for the vulnerability before an attacker takes the advantage of that particular vulnerability.

ADVANTAGES:

- Cybersecurity
- Identifies what security vulnerabilities to prioritize
- Improvement in the security level
- Identify the risk factor of a specific vulnerability

Predict Probability of a Vulnerability Being Exploited or Patched at a Given Time

The Life Cycle of Vulnerability

Tech ID # 17A015

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US010659488B1

(12) **United States Patent**
Rajasooriya et al.

(10) **Patent No.: US 10,659,488 B1**
(45) **Date of Patent: May 19, 2020**

(54) **STATISTICAL PREDICTIVE MODEL FOR EXPECTED PATH LENGTH**

(71) Applicants: **Sasith Maduranga Rajasoorlya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K. Hitigala Kaluarachchilage**, Franklin, OH (US)

(72) Inventors: **Sasith Maduranga Rajasoorlya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K. Hitigala Kaluarachchilage**, Franklin, OH (US)

(73) Assignee: **University of South Florida**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 151 days.

(21) Appl. No.: **15/907,968**

(22) Filed: **Feb. 28, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/464,609, filed on Feb. 28, 2017.

(51) **Int. Cl.**
H04L 29/06 (2006.01)

(52) **U.S. Cl.**
CPC ***H04L 63/1433*** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

10,268,660	B1 *	4/2019	Azazi	A63F 13/50
2006/0178887	A1 *	8/2006	Webber	G10L 15/144 704/256
2008/0010225	A1 *	1/2008	Gonsalves	G06N 7/005 706/11
2008/0098479	A1 *	4/2008	O'Rourke	G06F 21/577 726/25
2016/0078309	A1 *	3/2016	Feldman	G01B 9/0203 382/131

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Sunil Abraham and Suku Nait, "A Predictive Framework for CyberSecurity Analytics Using Attack Graphs", Jan. 2015, International Journal of Computer Networks & Communications (IJCNC) vol. 7, No. 1. (Year: 2015).*

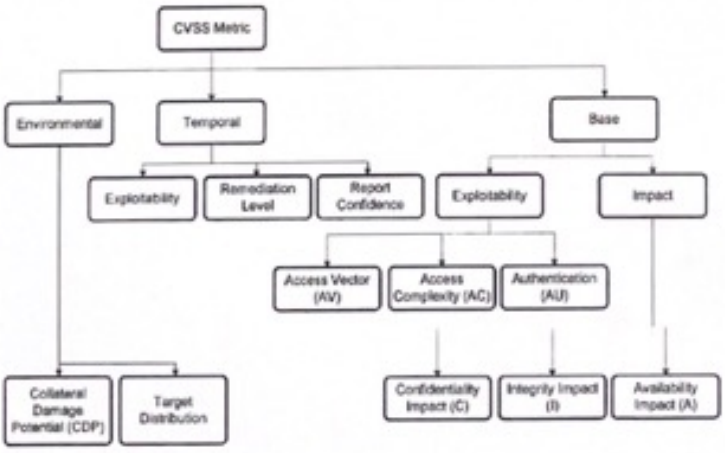
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Primary Examiner — Kaveh Abrishamkar
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP

(57) **ABSTRACT**

A statistical model for predicting an expected path length ("EPL") of the steps of an attacker is described. The model is based on utilizing vulnerability information along with an attack graph. Using the model, it is possible to identify the interaction among vulnerabilities and individual variables or risk factors that drive the EPL. Gaining a better understanding of the relationship between the vulnerabilities and their interactions can provide security administrators with a better view and understanding of their security status. In addition, a number of different attributable variables and their contribution in estimating the EPL can be ranked. Thus, it is possible to utilize the ranking process to take precautions and actions to minimize the EPL.

18 Claims, 6 Drawing Sheets



USF Available Technologies

Technology Transfer Office

Cybersecurity-Statistical Predictive Model for Expected Path Length

Researchers at the University of South Florida have invented a diagnostic tool against cyber attacks by using the statistical predictive model for expected path length.

All information is connected to the cyber world. However, certain vulnerabilities in the system can leak crucial information. Cyber attacks are a significant security challenge faced by government organizations and large companies. Cyber criminals use advanced networks and engineering techniques to attack. Commonly quantitative measures have been taken to evaluate the security of network systems.

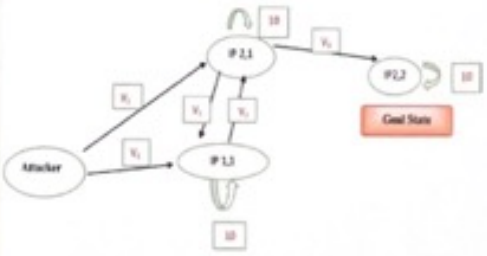
USF inventors have developed the stochastic model for measuring security vulnerabilities based on vulnerability exploitability scores and attack path behavior. All attack paths are considered in the attack graph by probabilistic analysis to measure the security of the network. This highly accurate statistical model is driven by vulnerabilities to find expected path length and a minimum number of steps going to be performed by an attacker to reach the target which will help to protect the system from attack.

With the statistical model used for finding expected path length, IT professionals can further diagnose significant interactions of key attribute variables, where attribute variables can be ranked to find percentage contribution to the response. To minimize the accepted path length, the accepted value is found by using surface response analysis.

ADVANTAGES:

- Statistical predictive model
- Rank-attributable values
- Surface response analysis to minimize the expected path length

Securing the Network Cyber Attack by Finding the Expected Path Length



Above diagram represents statistical predictive model. Where V_1, V_2, V_3 represents vulnerabilities. IP1, IP2 are service host. '10' represents maximum vulnerability score.

Tech ID # 17A014

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US010754959B1

(12) **United States Patent**
Rajasooriya et al.

(10) **Patent No.: US 10,754,959 B1**
(45) **Date of Patent: Aug. 25, 2020**

(54) **NON-LINEAR STOCHASTIC MODELS FOR PREDICTING EXPLOITABILITY**

(71) Applicants: **Sasith Maduranga Rajasooriya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K Hitigala Kaluarachchilage**, Franklin, OH (US)

(72) Inventors: **Sasith Maduranga Rajasooriya**, Franklin, OH (US); **Chris Peter Tsokos**, Tampa, FL (US); **Pubudu Kalpani K Hitigala Kaluarachchilage**, Franklin, OH (US)

(73) Assignee: **University of South Florida**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 200 days.

(21) Appl. No.: **15/875,249**

(22) Filed: **Jan. 19, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/448,642, filed on Jan. 20, 2017.

(51) **Int. Cl.**
G06F 21/57 (2013.01)
G06N 7/00 (2006.01)
H04L 29/06 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 21/577*** (2013.01); ***G06N 7/005*** (2013.01); ***H04L 63/1433*** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

10,268,660	B1 *	4/2019	Arazi	A63F 13/50
2006/0178887	A1 *	8/2006	Webber	G10L 15/144 704/256
2008/0010225	A1 *	1/2008	Gonsalves	G06N 7/005 706/11

(Continued)

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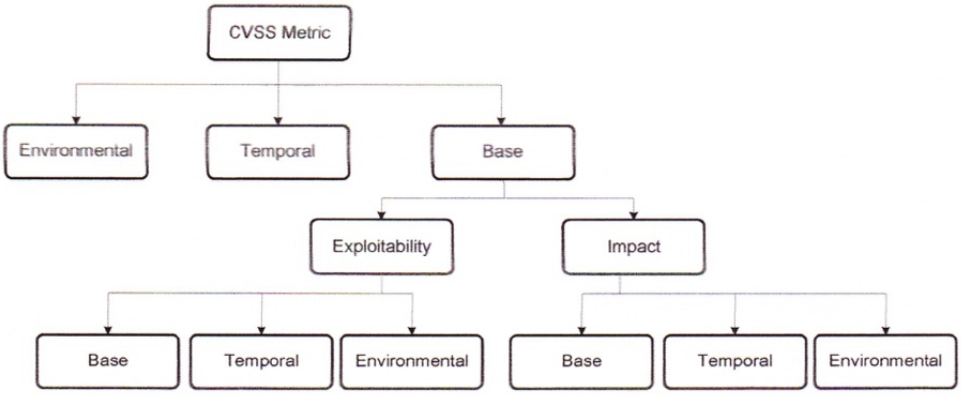
(Continued)

Primary Examiner — Kaveh Abrishamkar
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP

(57) **ABSTRACT**

Procedures to identify the probabilities for different states in a vulnerability life cycle are described. The probabilities are used to develop a number of statistical models to evaluate the risk factor of a particular vulnerability at time "t". A transition probability matrix of all states of a particular vulnerability as a function of time is also described. A Markov chain process can be iterated to reach a steady state of the transition probability matrix, with the initial probabilities reaching the absorbing states, including exploited and patched states. A risk factor is also introduced for use as an index of the risk of a vulnerability being exploited. Finally, statistical models that can calculate the risk factor more conveniently without going through the Markovian process are described.

18 Claims, 10 Drawing Sheets



US010848515B1

(12) **United States Patent**
Pokhrel et al.

(10) **Patent No.: US 10,848,515 B1**
(45) **Date of Patent: Nov. 24, 2020**

(54) **PREDICTIVE MODEL FOR OVERALL NETWORK SECURITY RISK**

(71) Applicants: **Nawa Raj Pokhrel**, Tampa, FL (US); **Chris P. Tsokos**, Tampa, FL (US)

(72) Inventors: **Nawa Raj Pokhrel**, Tampa, FL (US); **Chris P. Tsokos**, Tampa, FL (US)

(73) Assignee: **University of South Florida**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 266 days.

(21) Appl. No.: **15/829,264**

(22) Filed: **Dec. 1, 2017**

Related U.S. Application Data

(60) Provisional application No. 62/429,397, filed on Dec. 2, 2016.

(51) **Int. Cl.**
H04L 29/06 (2006.01)
G06N 7/00 (2006.01)

(52) **U.S. Cl.**
CPC ***H04L 63/1433*** (2013.01); ***G06N 7/005*** (2013.01); ***H04L 63/1416*** (2013.01)

(58) **Field of Classification Search**
CPC . H04L 63/1433; H04L 63/1416; G06N 7/005; G06F 21/57
See application file for complete search history.

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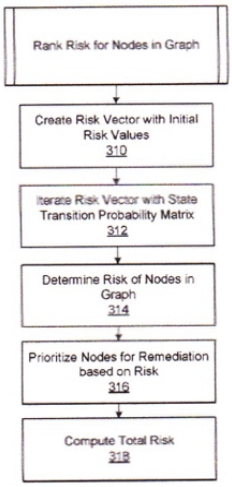
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Primary Examiner — Kristine L Kincaid
Assistant Examiner — Alexander R Lapian
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP.; Jason M. Perilla

(57) **ABSTRACT**

A stochastic model is described for cybersecurity using a host access attack graph to determine network security risk. The model uses Markov chains in conjunction with vulnerability metrics to analyze risks associated with a number of different types of computing devices in various types of networks. The model can be used to identify critical nodes in a host access attack graph where attackers may be most likely to focus. Based on that information, a network administrator can make appropriate, prioritized decisions for system patching. Further, a flexible risk ranking technique is described, where the decisions made by an attacker can be adjusted using a bias factor. The model can be generalized for use with complicated network environments.

20 Claims, 7 Drawing Sheets



USF Available Technologies

Technology Transfer Office

Cybersecurity: A Stochastic Predictive Model to Determine Overall Network Security Risk Using Markovian Process

Researchers at the University of South Florida have developed a stochastic model to quantify the risk associated with a network by employing the Markovian model in combination with the CVSS (Common Vulnerability Scoring Sytem) framework.

Common security metrics of the contemporary world focus merely on the qualitative and subjective aspects of networks. They lack formal statistical models and face the challenge to develop a mechanism with a holistic approach towards aggregating the security risk of the overall system. Furthermore, in a large scale enterprise, the administrator must consider multi-stage/multi-host vulnerability exploit from the attackers. This requires the building of attack graphs, but with the increasing size of the network, deciphering the results can become complicated.

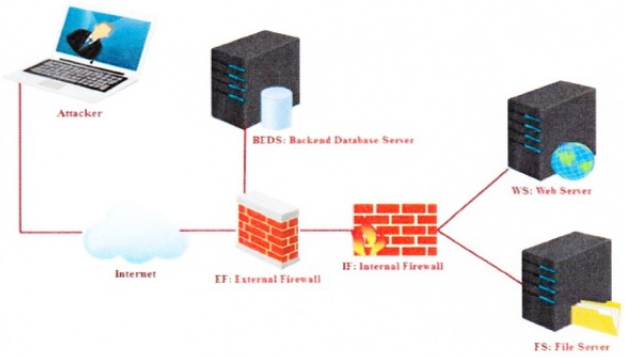
To overcome these challenges, scientists at USF suggest a quantitative model for cybersecurity applications using host access graph to determine the overall network security risk. Based on the Markovian process, the model determines the critical nodes present in the access graph where the attacker is most likely to visit. The network administrator can then make a decision about system patching, deploy security products and design network topologies.

This model can be generalized and applied towards a more complicated network. Moreover, the modeling aspect and scientific methodology can be made to suit a specific security system as and when required by an enterprise.

ADVANTAGES:

- **Determines the nodes where the attacker is likely to visit**
- **Helps in deploying security measures**
- **Can be generalized and applied to complex networks**
- **Can be tailored to fit a specific security system**

A Stochastic Cybersecurity Model that Quantifies the Overall Security Risk of a System



Network Scenario

Tech ID # 16B141

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US011298071B1

(12) **United States Patent**
Saghafi et al.

(10) **Patent No.: US 11,298,071 B1**
(45) **Date of Patent: Apr. 12, 2022**

(54) **MACHINE LEARNING ANALYTICS IN REAL TIME FOR HEALTH SERVICES**

(71) Applicant: **University of South Florida**, Tampa, FL (US)

(72) Inventors: **Abolfazl Saghafi**, Tampa, FL (US); **Chris P. Tsokos**, Tampa, FL (US)

(73) Assignee: **University of South Florida**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 658 days.

(21) Appl. No.: **16/161,975**

(22) Filed: **Oct. 16, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/572,782, filed on Oct. 16, 2017.

(51) **Int. Cl.**

A61B 5/00	(2006.01)
A61B 5/24	(2021.01)
A61B 5/372	(2021.01)
G06F 17/18	(2006.01)
G06N 7/00	(2006.01)
A61B 5/316	(2021.01)

(52) **U.S. Cl.**
CPC ***A61B 5/4076*** (2013.01); ***A61B 5/24*** (2021.01); ***A61B 5/2415*** (2021.01); ***A61B 5/316*** (2021.01); ***A61B 5/725*** (2013.01); ***G06F 17/18*** (2013.01); ***G06N 7/00*** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

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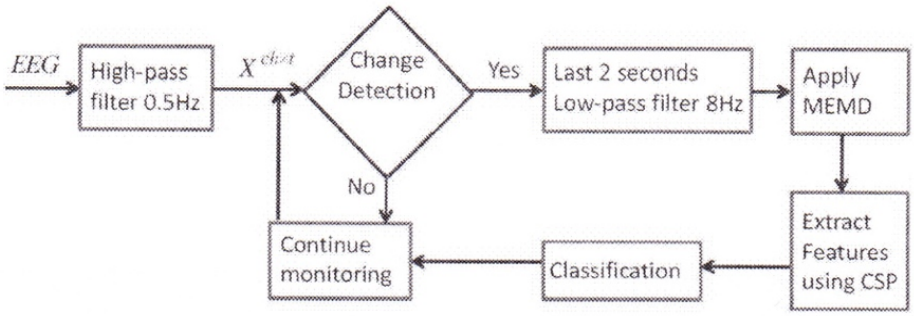
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(74) *Attorney, Agent, or Firm* — Meunier Carlin & Curfman LLC

(57) **ABSTRACT**

Methods and systems detect a random state change in a subject in real time. Eye state changes may be identified in encephalogram brain signals, or honeybee dance patterns may be classified. Multivariate signals including state change information are received via a plurality of channels. The signals are sampled and may be filtered to remove DC components. Statistical characteristics of the signals are monitored. When the statistical characteristics exceed a threshold during a critical time interval, a potential change of state is detected. The critical time segment of the signals may be filtered to generate respective state change artifact signals. The state change artifact signals are decomposed by MEMD, and intrinsic mode functions are generated. Features are extracted from the intrinsic mode functions. These steps may be repeated while the extracted features are provided to a logistic regression classifier that is used to predict a state of the subject.

20 Claims, 15 Drawing Sheets
(15 of 15 Drawing Sheet(s) Filed in Color)



USF Available Technologies

Technology Transfer Office

Machine Learning Analytics in Real-Time

Researchers at the University of South Florida have developed an analytic method to identify, track, and predict random changes in real-time.

Most machine learning methods require extensive training and prediction times to work accurately, and therefore, do not allow real-time predictions. This upfront time requirement limits the real-life applications of machine learning methods. However, many problems do not require the upfront utilization of machine learning for decision making process.

USF researchers have created analytic systems with the ability to analyze data in real-time. These analytics take the random nature of changes into account via a control process to speed up the prediction process and provide more accurate decision making procedures. The analytic method combines process control, signal processing, and machine learning analytics together to form a decision making system. This novel method is applicable to multiple processes over a variety of fields such as health sciences (real-time epileptic seizure prediction, heart problem diagnosis), environmental sciences (predicting and detecting honey bee dance moves used for communication), finance (decision making upon potential market changes). The adaptability of the analytic method has great potential to transform machine learning across multiple disciplines.



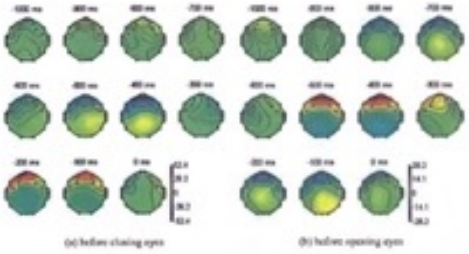
Working with the brain and the heart



ADVANTAGES:

- Significantly Improved Processing Speed
- Improved Accuracy of Machine Learning Analytics
- Real-time Processing
- Automated Decision Making

Fast Analytic Method to Identify and Predict Changes in Real-Time While Accounting for Natural Noise



Scalp Map of Brain Activity for Average Amplitude Showing Use of Analytics for Prediction

Tech ID # 17A083

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US011483335B1

(12) **United States Patent**
Tsokos et al.

(10) **Patent No.: US 11,483,335 B1**
(45) **Date of Patent: Oct. 25, 2022**

(54) **CYBERSECURITY: RELIABILITY OF A COMPUTER NETWORK**

(71) Applicant: **University of South Florida**, Tampa, FL (US)

(72) Inventors: **Christos Peter Tsokos**, Tampa, FL (US); **Freeh Naef Alemzi**, Riverview, FL (US)

(73) Assignee: **UNIVERSITY OF SOUTH FLORIDA**, Tampa, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/110,962**

(22) Filed: **Dec. 3, 2020**

(51) **Int. Cl.**

H04L 9/40	(2022.01)
G06N 7/00	(2006.01)
G06K 9/62	(2022.01)
H04L 41/147	(2022.01)

(52) **U.S. Cl.**
CPC ***H04L 63/1433*** (2013.01); ***G06K 9/6277*** (2013.01); ***G06N 7/005*** (2013.01); ***H04L 41/147*** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

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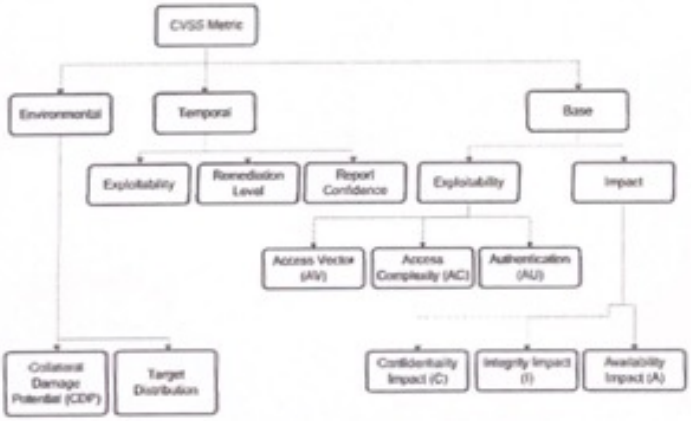
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Primary Examiner — Kaveh Abrishamkar
(74) *Attorney, Agent, or Firm* — Quarles & Brady LLP

(57) **ABSTRACT**

Statistical models for predicting minimum number of step data of an attacker and reliability functions of a computer network system are described. The models are based on utilizing vulnerability information along with an attack graph. Using the model, it is possible to identify the interaction among vulnerabilities and individual variables or risk factors that drive the minimum number of step data. Gaining a better understanding of the relationship between the vulnerabilities and their interactions can provide security administrators with a better view and understanding of their security status.

20 Claims, 15 Drawing Sheets





U.S. Pending Patents

U.S. PENDING PATENTS

- AI Supervised Learning Model to Predict the Conversion Time of Mild Cognitive Impairment Patients to Alzheimer's Disease. US Patent Application No. 63/299,760, with M. A. Sheha.

- Real Data-Driven Nonlinear Analytical Model for Crop (Corn) Production in US Patent Application No. 17/372,047, with L. Mamudu.

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AI Based Model to Predict Conversion Time of MCI Patient to AD Patient

USF TECHNOLOGY TRANSFER

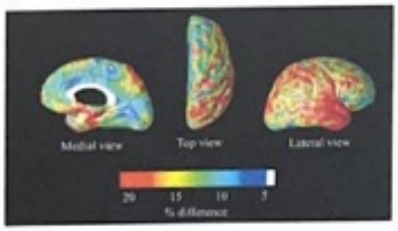
OVERVIEW

Competitive Advantages

- Predicts the time of conversion from MCI to AD stage with 93.5% accuracy
- Computes 95% or 99% confidence limits of predicted conversion time
- Accurate Prediction Based on AI

Business Summary

Alzheimer's Disease gradually degrades the memory of an individual over time. The process cannot be reversed and there is no known cure. In this technology, individuals with Mild Cognitive Impairment (MCI) are studied. These patients are treated and observed to see if their MCI improves or deteriorates. Some patients with MCI remain in that state, while other patients develop Alzheimer's Disease. Some patients may also revert back to Normal Cognition, but that is extremely rare. This technology uses an artificial intelligence (AI) model created from data in the study to predict how long it takes for a patient with MCI to convert into the Alzheimer's Disease stage. The model will also determine risk factors, and interactions among the risk factors, that contribute to a conversion time of MCI to Alzheimer's disease (AD). While there is previous research on the subject, the novel aspect of this technology comes from the combination of prediction of the conversion time from MCI to AD in the patient and the determination of risk factors. In addition, this AI predictive analytical model can be used to evaluate the drug's effectiveness among other uses.



3-D image of brain atrophy

Tech ID: 21A090

Patent #: Patent Pending

Researcher(s):

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Real Data-Driven Nonlinear Analytical Model for Corn Production in the US

USF TECHNOLOGY TRANSFER

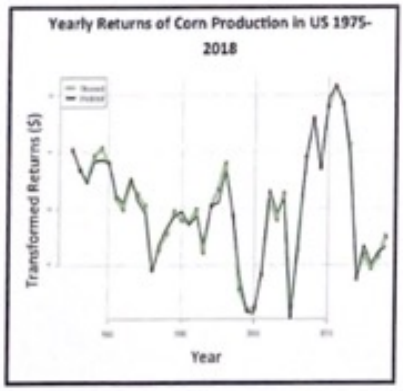
OVERVIEW

Competitive Advantages

- Identifies the most important factors to maximize the returns of production
- Factors ranked by their contributions to the returns
- Estimates reliable production returns
- Strategy for a successful maximization of the product returns
- Strategy to stimulate investor confidence

Business Summary

Our researchers have developed a data-driven multivariate nonlinear statistical model that identified seven significant individual contributable factors and six significant contributable interaction terms that accurately predict the returns from corn production in the U.S. from 1975-2018.The identified factors include the opportunity cost of land, fuel, lube and electricity, custom services, the market value of the grain, fertilizer, operating capital, hired labor, as well as other interaction factors. Our statistical model is of high quality and accurately predicts the returns, satisfying all assumptions, residual analysis, and goodness-of-fit tests. The proposed model performs much better compared to other least square models.



Tech ID: 20A078

Patent #: Patent Pending

Researcher(s):

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- A Real Data-Driven Analytical Model to Predict Happiness. USF ID 20B127
- A Real Data-Driven Analytical Model for Testing for the Coronavirus Disease-COVID 19. USF Protected Copyright: 20B126.
- Analytical Methods: Identifies, Optimize, Monitoring the Production Return of Soybean. USF TTO Patent Innovation, with E. Tetteh-Bator.
- Correct Methodology of Calculating Risk Factor (Beta factor) and Volatility of Investment of Financial and Economic Entity, USF TTO Patent Innovation, with M. Iluppangama
- FINANCIAL SEGMENT OF THE S&P 500: A Predictive Analytical Model that Identifying Financial and Economic indicators that Drives S&P 500 Financial Sector, Optimization, Stochastic Monitoring Indicator, Desirability Portfolio Selection Method. USF TTO Patent Innovation, with M. Iluppangama



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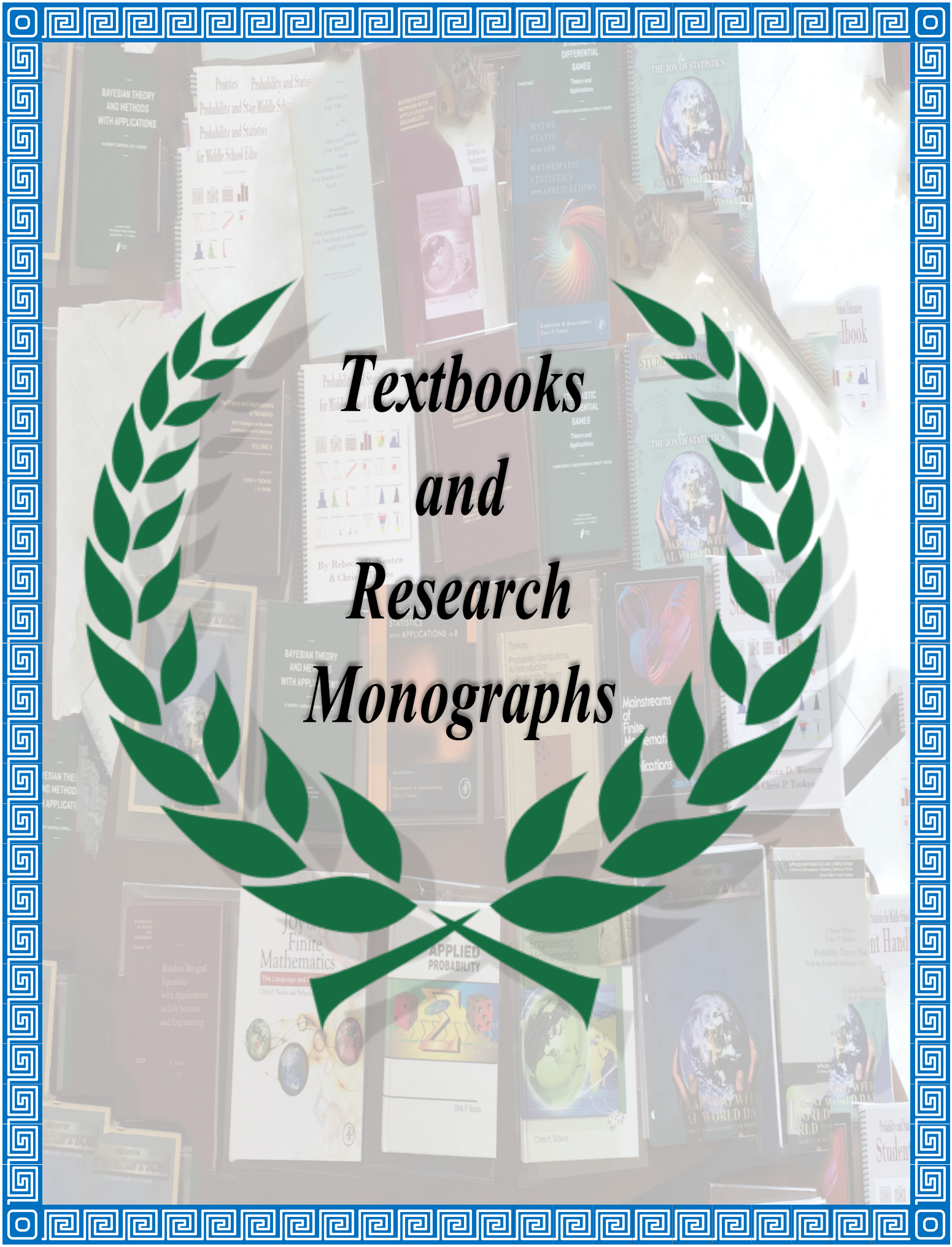
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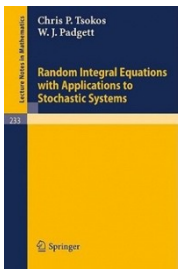
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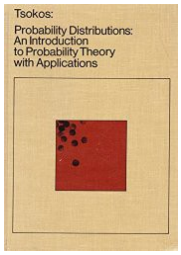
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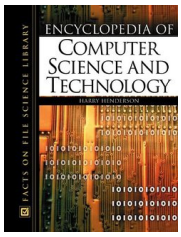
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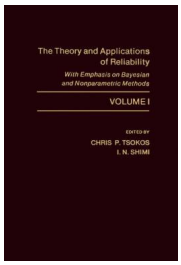
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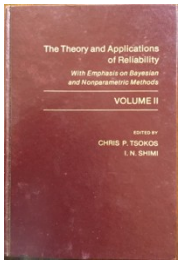
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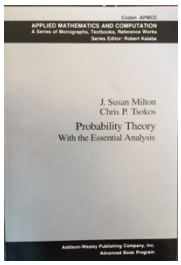
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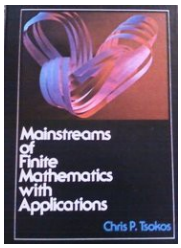
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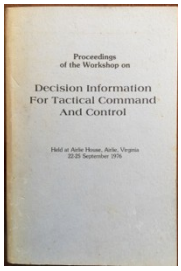
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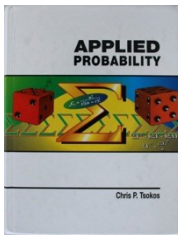
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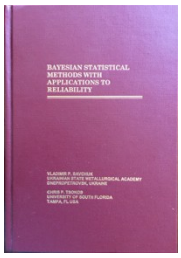
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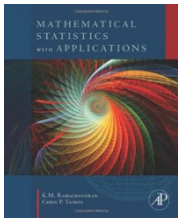
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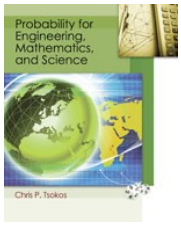
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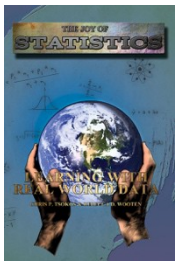
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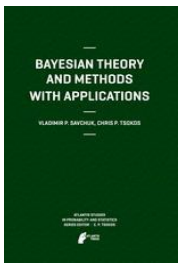
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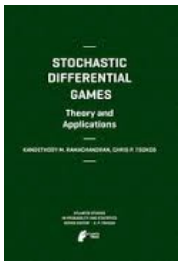
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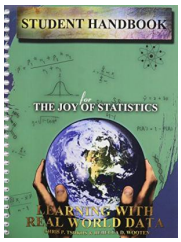
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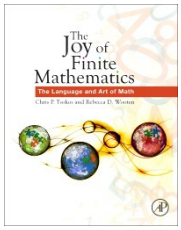
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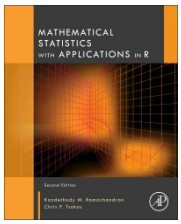
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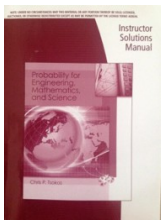
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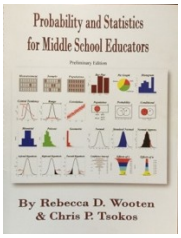
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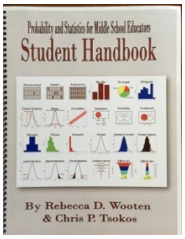
Mathematical Statistics with Applications in R, Second Edition, **Academic Press Publishing Co./Elsevier Science and Technology**, Amsterdam – Boston, with K. Ramachandran, September 2014, 826 pages.

21. 

Instructor's Solutions Manual, for Probability for Engineering, Mathematics, and Science, **Brooks/Cole – Cengage Learning**, Dec. 2012, 372 Pages.

22. 

Probability and Statistics for Middle School Educators, Preliminary Edition, **Kendall/Hunt Publishing Co.**, with R. D. Wooten, 304 Pages, Aug. 2015.
ISBN13: 978-0-9967210-1-1

23. 

<u>Student Handbook, Probability and Statistics for Middle School Educators</u>, **Kendall/Hunt Publishing Co.**, with R. D. Wooten, Aug. 2015.

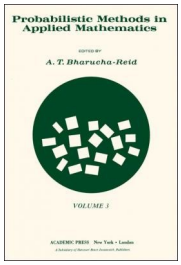
ISBN13: 978-0-9967210-2

24. **<u>The following book was translated into Chinese</u>**

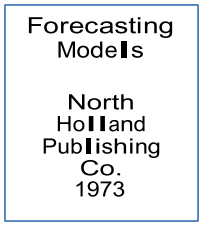



Chapters
in
Research
Monographs

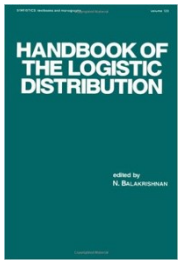
CONTRIBUTED CHAPTERS IN RESEARCH MONOGRAPHS

1. 

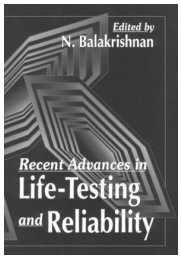
On Some Stochastic Differential Games, a chapter in Probabilistic Methods in Applied Mathematics, Vol. III. New York: **Academic Press**, 1973, with W.G. Nichols and edited by A.T. Bharucha-Reid

2. 

Forecasting Models from Non-Stationary Time Series-Short Term Predictability of Stocks, a chapter in Mathematical Methods in Investment and Finance. **North Holland Publishing Co**., 1973, pp. 520-63.

3. 

Handbook of the Logistic Distribution, **Application to Health and Social Sciences**, Chapter 17, pp. 449-94, 1991, **Marcel Dekker**, Inc.

4. 

Recent Advances in Life-Testing, Reliability Growth: Nonhomogeneous Poisson Process, Chapter 17, pp. 319-34, 1995, **CRC Press, Inc.**

5. **Healthcare Policy, Innovation and Digitalization**: Recent Developments of multiple Myeloma: Analysis and analytical Modeling, Chapter 9, pp 155-194, Springer Publication co. Jan. 2024 with L. Mamudu.

6. **Pattern Recognition. ISBN 978-953-51-6874-4** Chapter Title: Bayesian Artificial Neural Networks with H. Rodrigo, 2018.

7. **The Encyclopedia, Florida Bay and Corel Reef of Florida Keys. ISBN. 8493-2026-**7.Chapter Title: Detection of Coral Reef Change by the Florida Keys Coral Reef Monitoring Project CRC PRESS, 2001


Proceedings
Publications
and
Technical
Reports

PROCEEDINGS PUBLICATIONS & TECHNICAL REPORTS

1. Sound Radiation from a Cylindrical Shell. Technical Publication, Electric Boat/Division of General Dynamics, for the Bureau of Ships/David Taylor Model Basin; December 1962, (U413-62-174), p. 79.

2. The Radiated Noise Reduction Properties of RAL Tile in Water. Technical Publication, Electric Boat/Division of General Dynamics, Underwater Sound Laboratory; February 1963, (U413-62-014), confidential, p. 64.

3. Reliability, Maintainability, Availability and Dependability of a Weapon System. Bureau of Naval Weapons Technical Publication/Weapons Engineering Division, Quonset Point, Rhode Island; September 1964, p. 86.

4. Stability Properties of Controlled Motion. University of Rhode Island, Mathematics Department Technical Report No. 5; July 1968, with V. Lakshmikantham, p. 19.

5. On Some Stochastic Integral Equations. University of Rhode Island, Mathematics Department Technical Report No. 6; August 1968, p. 22.

6. Statistical Analysis and Modeling of Path Loss Distance Dependency Information. Research and Development Technical Report, USA Electronics Command, ECOM-4231, Fort Monmouth, NJ; July 1974, with R.J. D'Accardi, D. Dence and R.A. Kulinyi.

7. Control Systems and Finite Time Stability, Int. de Matemstica Universidate Fed. De Pernamtiuco, No. 22; January 1969, pp. 1-11, with S. Leela.

8. Distributed Parameters Systems with Time Lag, IEEE Proceedings of the 12th Midwest Symposium on Circuit Theory, April 1969, pp. XIII 6.1-6.8, with A.N.V. Rao.

9. Stochastic Differential Games, First Intl. Conference on Theory and Applications of Differential Games, October 1969, pp. V-25-29, with E. Roxin.

10. Ordinary and Empirical Bayes Approach to Estimation of Reliability in the Weibull Life Testing Model, Proceedings of the 16th Conference on the Design of Experiments in Army Research, Development and Testing, Fort Lee, Virginia, October 1970, pp. 379-92, with G.C. Canavos.

11. On a Discrete Stochastic Integral Equation of the Volterra Type with Application to Stochastic Systems, Proceedings of the 38th Session of the International Statistics Institute, Washington, D.C., August 1971, pp. 287-92, with W.J. Padgett.

12. Existence of a Random Solution of a Perturbed Stochastic Integral Equation, Proceedings of the 38th Session of the International Statistics Institute, Washington, D.C., August 1971, pp. 394-97, with J.S. Milton.

13. Statistical Models for HF Ionospheric Forecasting for Field Army Distances, Proceedings of the 7th Conference on the Design of Experiments in Army Research, Development and Testing, Washington, D.C., October 1971, with R. D'Accardi and R. Kulinyi.

14. Statistical Modeling of Propagation Loss Data, Proceedings of the 18th Conference on the Design of Experiments, Washington, D.C., October 1972, with M. Acker, R. D'Accardi and D. Dence.

15. Statistical Analysis of HF Oblique and Vertical Incidence Ionospheric Data Applicable to Field Army Distances, Proceedings of the 18th Conference on the Design of Experiments, October 1972, with R. D'Accardi.

16. Statistical Analysis and Modeling of Path Loss Distance Dependency Information, Proceedings of the 19th Conference on the Design of Experiments, 1974, with R. D'Accardi and D. Dence.

17. On the Robustness for Bayesian Estimates of Reliability with Computer Simulation, Proceedings of the 20th Conference on the Design of Experiments in Army Research, Fort Belvoir, Virginia, October 1974.

18. Forecasting Models for Mosquito Population Behavior, Proceedings of the 20th Conference on the Design of Experiments in Army Research, Fort Belvoir, Virginia, October 1974, with S. Smeach.

19. A Statistical Model for Intellectual Development, Proceedings of the 1975 Social Statistics Section of ASA, 1975, with R. Welch and M. Denker.

20. Modeling and Analysis Techniques Applicable to Man-Machine Interface Problems, Proceedings of the Armed Forces Communications and Electronics Association, April 1976, Fort Monmouth, New Jersey.

21. Modeling and Analysis Techniques Applicable to Man-Machine Interface Problems, Proceedings of the First Annual Seminar, The Art of Communications Interfaces, April 22, 1976, pp. 62-76, with R. D'Accardi.

22. A Stochastic Differential Model for the Effects of Family Configuration on Intelligence, Proceedings of the 1976 Social Statistics Section of ASA, August 1976, with R. Welch and M. Denker.

23. Stochastic Combat Modeling-Lanchester's First Law, Proceedings of the Workshop on Decision Information for Tactical Command and Control, Airlie, Virginia, September 22-25, 1977, with G. Schultz.

24. Analysis of Man-Machine Interface Information in Current Communications Systems, U.S. Army Technical Report, Proceedings of the 10th Conference on the Design of Experiments in Army Research, Development and Testing, 1977, with R. D'Accardi.

25. An Algorithm for the Design of Multi-Spectral Sensors, Technical Report, NASA-NSG 1159-506-90-21, with A. Rust and J. Turner.

26. Detection of Myocardial Infarction Using Serum Lactic Dehydrogenase Isoenzymes/ Discriminant for Myocardial Infarct, 1978, with L. Bernstein and J. Turner.

27. Analysis of Man-Machine Interface Information in Current Communications Systems, Technical Report, U.S. Army, Fort Monmouth, New Jersey, April 1979, with R. D'Accardi.

28. Communication Within a Hierarchical Network: A Stochastic Analysis, Technical Report, prepared for U.S. Army Communications Center, Fort Monmouth, New Jersey, May 1979.

29. Stochastic Analysis of Multiple-Passband Spectral Classifications Systems Affected by Observation Error, Flight Electronics Division/NASA, USF, 1980.

30. An Extended Inverse Problem in Compartmented Analysis and Drug Concentration Studies, USF, 1982, with G. Schultz.

31. Time Series Modeling of Rainfall Density Information, Technical Report, 78-6 U.S. Army Communication Research and Development Command, Fort Monmouth, New Jersey, 1981, with R. D'Accardi.

32. A Stochastic Model for Image Formation, USF, 1983, with S. Hardiman.

33. Data on Passive Smoking and Lung Cancer: A Japanese Epidemiological Study, USF, 1985.

34. Evaluation of the Epidemiological Study on the Effects of Environmental Tobacco Smoke on Urinary Cotinine Excretion in Nonsmokers, USF, 1989.

35. Non-Smoking Wives of Heavy Smokers Have a Higher Risk of Lung Cancer, British Medical Journal, November 1981, p. 1464, London, England.

36. The Duplication Theorem of Social Relationships I: Re-Examination of Current Status, USF, Mental Health Center, with R. Welch and M. Denker.

37. Coral Reef Monitoring Analysis, Proceedings/USEPA/Marine Sanctuary, Video transects 1996-2001. March 2003, with G. Yanev.

38. Coral Reef Hard bottom Monitoring Analysis, Preceding/USEPA/Marine Sanctuary, 1996-2003, Aug. 2003, with G. Yanev.


Director of
Academic
Conferences
and
Workshops

DIRECTOR OF ACADEMIC CONFERENCES

- International Conference on "The Theory and Applications of Reliability with Emphasis on Bayesian and Nonparametric Methods," sponsored by U.S. Air Force of Scientific Research, USF, Dec. 1975, Tampa, FL.

- DMSAG, Data Management and Statistical Modeling, sponsored by Bureau of Land Management, MAFLA System, Washington, D.C., USF, Jan. 1976, Tampa, FL.

- Conference on Decision Information for Tactical Command and Control, sponsored by U.S. Army, U.S. Navy, U.S. Air Force, Washington, D.C., Airlie House, Airlie, Virginia, June 1979.

- Stochastic Systems Modeling, International Association for Mathematics and Computers in Simulation, World Congress, 1985, Oslo, Norway.

- First International Congress of Nonlinear Analysts, 73 countries participated, Aug. 1992, Tampa, FL, sponsored by IFNA.

- Recent Developments of Reliability Analysis and Modeling, First International Congress of Nonlinear Analysts, Tampa, FL, Aug. 1992.

- Nonlinear Stochastic Systems, First International Congress of Nonlinear Analysts, Tampa, FL, Aug. 1992.

- First International Conference on Nonlinear Problems in Aviation and Aerospace; Reliability Analysis and Applications, Embry-Riddle Aeronautical University, May 9-11, 1996.

- Second World Congress, International Federation of Nonlinear Analysts, IFNA, co-director; Athens, Greece; July 9-17, 1996. Highlights: 103 countries participated with 1,458 technical presentations, including two Nobel Laureates.

- Third World Congress, International Federation of Nonlinear Analysts, IFNA, co-director; Catania, Italy, July 19-26, 2000.

- Conference/Workshop: Decision Information of Tactical Command and Control, Airlie, Virginia, September 1976, U.S. Government.

- USF/Oak Ridge National Laboratory, Workshop on GLOBAL WARMING, April 12-13, 2007, Tampa, Florida.

- USF/Platts Analytics – McGraw Hill, Comp. Workshop on Quantitative Modeling, Risk Analysis and Global Warming, Nov. 8-9, 2007, Tampa, Florida.

- Organized and directed the 6th World Congress of Nonlinear Analysts (IFNA), University of Athens, Athens Academy of Science and Athens Chamber of Commerce, Athens, Greece, June 25-July 1, 2012, more than 80 countries participated.

- Organized and directed the following: Special Sessions, Workshops and Round-Table Discussions at the IFNA World Congress 2012, Athens, Greece.

- GLOBAL HEALTH – University of Athens, June 26-27, 2012.

- GLOBAL ENVIRONMENT – The Athens Chamber of Commerce & Industry, June 27-28, 2012.

- GLOBAL ENERGY – ACCI, Athens, June 28, 2012.

- GLOBAL ECONOMY – ACCI, Athens, June 28, 2012.

- First Conference on the Frontiers of Statistics, Data Science across Disciplines, April 1-2, 2016, USF/ IFNA/ ASA.

- Second Conference on the Frontiers of Statistics, Cybersecurity, Health Sciences, Finance and Environment, May 11-12, 2018, USF/IFNA, ASA.

- Third Conference on the Frontiers of Statistics, Data Science across Disciplines, Environment, Health System, Finance and Economics, May 19-20, 2023, USF/ IFNA/ ASA.

- Fourth Conference on the Frontiers of Statistics, Health Science, Environment, Financial Systems, Cybersecurity, May 10-11, 2024, USF/ IFNA/ ASA.


Keynote
Speeches

KEYNOTE SPEECHES

- Moscow State University, "The Relevance of Mathematical Thinking", Oct. 30, 1992, Moscow, Russia.
- Engineering Academy of Russia, "The Frontiers of Statistical Developments", Nov. 7, 1992, Moscow, Russia.
- Samara Polytechnic University, "Mathematical and Statistical Sciences to Solving Complex Engineering Problems", Samara, Russia.
- Fudan University, "We live in a Probabilistic Society", May 5. 1993, Shanghai, P.R. China.
- Peking University, "Mathematical Science in Solving Environmental Problems", May 7, 1993, Beijing, P.R. China.
- Ocean University of Qingdao, "Forecasting Modeling of Atmospheric Problems", May 11, 1993, Shandong, P.R. China.
- Middle East Technical University, "Mathematical Science in Health", Ankara, Turkey, Aug. 12, 1994.
- Istanbul Technical University, "Stochastic Systems: Theory & Applications", Istanbul, Turkey, Aug. 14, 1994.
- Fifth International Conference on Dynamical Systems and Applications, Morehouse College, Atlanta, GA, May 30, 2008, "Statistical Modeling of Global Warming"
- The Fourth International Conference on Neural, Parallel and Scientific Computations, CAU – Center for Theoretical Studies of Physical Systems, Atlanta, GA, August 11, 2010, "Global Warming: Myth, Reality, Copenhagen and Developments"
- The University of Connecticut, Storrs, Connecticut, April 4, 2010, "Global Warming: Myth and Reality"
- Sixth International Conference on Dynamical Systems and Applications, May 25, 2011, Atlanta, GA, "Cancer Research and Mathematical Sciences"

- Sixth World Congress of IFNA 2012, Athens, Greece, June 25, 2012, "Global Health, Environment, Energy and Economy Through the Art of Mathematical Sciences," "Data Driven Statistical Models to Understand Cancer's Behavior: Risk Factors" and "Global Warming: Myth or Reality?"

- University of Missouri-St. Louis, "The Catalyst for Democracy: Hellenism and Hellenic Paideia", Dec. 2, 2015.


Invited
International
Presentation

INVITED INTERNATIONAL PRESENTATIONS

1. McGill University, Visiting Scholar Program, "Random Equations, Stability Theory and Applications," McGill University, Montreal, Canada; April 10-13, 1969.

2. The 7th International Biometrics Conference on "A Stochastic Model for Chemotherapy," Hanover, Germany; Aug. 16-21, 1970.

3. Romanian Academy of Sciences and the University of Iassi in honor of the 60th anniversary of the founding of the Myller School of Mathematics, "Stochastic Integral Equations in Engineering and Biological Sciences," Iassi, Romania; Aug. 20-25, 1970.

4. The International Congress of Mathematicians, "Partial Stability Defined Over a Finite Time Interval and Converse Theorem," Nice, France; Sept. 1-10, 1970.

5. Symposium on Mathematical Methods in Investments and Finance, sponsored by NATO and the Italian government. "Forecasting Models from Non-Stationary Time Series: Short Term Forecasting of Stocks," Venice, Italy; Sept. 10, 1971.

6. Nuclear Research Center of Greece, Athens, Greece, "Biological and Engineering Modeling Utilizing Nonlinear Integral Equations," Aug. 24, 1973.

7. Caratheodory Symposium, "Sufficient Conditions for the Existence of Random Solutions of Stochastic Integral Equations with Applications," Athens, Greece; Sept. 3-5, 1973.

8. World Organization of General Systems and Cybernetics, "Stochastic Control Systems and Target Functions," Bucharest, Romania; Aug. 24-29, 1975.

9. International Conference on Information Sciences and Systems, “On the Existence of Stability Behavior of Nonlinear Stochastic Systems," Patras, Greece; Aug. 19-24, 1976.

10. University of Patras, "Recent Developments on the Statistical Formulation of Pharmacokinetic Systems," Patras, Greece; Aug. 27, 1976.

11. Congress of Applied Mathematics of the Balkan Countries, "Stochastic Systems with Applications," Thessaloniki, Greece; Aug. 16-21, 1976.

12. Visiting Scholar, University of Edmonton, "Recent Developments in Nonlinear Stochastic Discrete Systems," and "Delay and Statistical Effects on Pharmacokinetic Systems," Edmonton, Canada; May 4-7, 1977.

13. International Symposium on Measurement and Control, "Introducing the Alpha Probability Distribution for Reliability Studies," Athens, Greece; June 1978.

14. IEEE International Conference on Information Sciences and Systems, "Recent Developments in Nonparametric Probability Density Estimation," Patras, Greece; July 1979.

15. Warsaw International Symposium, "Hydrochemistry and Paleohydrochemistry of the Black Sea Basin Based on Results from the Deep Sea Drilling Project," with F. Manheim, Warsaw, Poland; June 1978.

16. University of Patras, College of Engineering, "Adaptive Forecasting for Non-stationary Time Series," Patras, Greece; June 1980.

17. Visiting Scholar Program, University of Edmonton, "Pharmacokinetic Random Systems: Linear vs. Nonlinear Evaluations," Edmonton, Canada; April 1981.

18. EEC-International Conference/Health Aspects of Passive Smoking in Europe: Europass," and "Robust Methods for Modeling and Analyzing Passive Smoking Data," University of Athens, Athens, Greece; Nov. 30, 1987.

19. Bulgarian Academy of Sciences, Angel Kancher Technical University, "E- Optimal Control of Nonlinear Systems," Rousse, Bulgaria; Aug. 1989.

20. The Fields Institute for Research in Mathematical Sciences, Keynote Speaker, Symposium on Comparison Methods and Stability Theory, "Nonlinear Stochastic Systems for Quality Growth," Waterloo, Ontario, Canada; June 6, 1993.

21. McMaster University, Department of Mathematics & Statistics, "Best Efficient Estimates of the Intensity Function of the Weibull Process," Hamilton, Ontario, Canada; June 4, 1993.

22. Russian Lecture Tour / Russian Academy of Science / IFNA, lectured on various topics in Statistics, Probability and Applied Mathematics, October 25-November 10, 1992.

- International Federation of Nonlinear Analysts / RAS-Moscow Center; Moscow, Russia
- Institute of Transport Problems / Russian Academy of Sciences; Moscow, Russia
- Moscow State University; Moscow, Russia
- Siberian Branch of Russian Academy of Science; Irkutsk, Russia
- Irkutsk Computing Center / RAS; Irkutsk, Russia
- Samara Polytechnic University; Samara, Russia
- Engineering Academy of Russia, Volga Region; Samara, Russia

23. People's Republic of China Invited Tour, lectured on various topics in Statistics, Probability and Stochastic Systems, May 3-23, 1993.

- South China Normal University; Guangzhou, P.R. China
- Zhongshan (Sun Yatsen) University; Guangzhou, P.R. China
- Fudan University; Shanghai, P.R. China
- Shanghai Meteorological Society; Shanghai, P.R. China
- Peking University; Beijing, P.R. China
- Northeast Normal University; Changchun, P.R. China
- Ocean University of Qingdao; Qingdao, Shandong, P.R. China

24. Turkey Invited Lecture Tour, lectured on Reliability Modeling, Product Quality and Stochastic Systems, Aug. 10-18, 1994.

- Middle East Technical University; Ankara, Turkey
- The Scientific and Technical Research Council of Turkey; Ankara, Turkey
- The Marmara Research Center; Gebze-Kocaeli, Turkey
- Istanbul Technical University; Istanbul, Turkey

25. Sixth International Colloquium on Differential Equations, "Byproducts of Solutions of Stochastic Differential Equations: Reliability Growth Analysis," Bulgarian Academy of Sciences, Plovdiv-Sofia, Bulgaria; Aug. 18-21, 1994.

26. Aristotle University of Thessaloniki, "Cycle Representations of Markov Processes-Chaotic Systems," Thessaloniki, Greece; March 29-31, 1995.

27. International Conference on Nonlinear Differential Equations, "On the Theory of Stochastic Impulsive Differential Systems," National Academy of Ukraine, Kiev; Aug. 21-27, 1995.

28. Third International Symposium on Non-Linear Analysis and Applications to Biomathematics, "Parametric and Nonparametric Modeling of Nonlinear Problems in Health Sciences," Visakhapatnan, India; Aug. 11-12, 1997.

29. University of Patras, Department of Computer Engineering and Informatics, "Software Reliability Using Nonhomogeneous Poisson Process," Patras, Greece; June 11-12, 1997.

30. International Society Bayesian Analysis, ISBA. May 28-June 1st 2000. Co-Invited Presentation to Heraklion, Crete to the 6th World Meeting.

31. Hellenic American Union, June 6, 2000. Invited to give a presentation in Pittsburgh, Pennsylvania on “the Education Mission and Strategies of AFGLC”.

Dr. CHRIS P. TSOKOS
Visits
Gayatri Vidya Parishad College of Engineering

32. Foundation for Hellenic Academic Studies, November 11, 2000. Invited to give a presentation in Pittsburgh, Pennsylvania on "the Educational Mission and Strategies of AFGLC".

33. University of Rhode Island, November 16, 2000. Invited to give a presentation on "Interdisciplinary Centers at American Universities for Hellenic Studies".

34. Zappeion Megaro, GREECE, October 7, 2000. Invited to give a presentation on "The Importance of the Establishment of the AFGLC Center in Greece: Mission-Goals and Objectives".

35. Third International Conference on Dynamic Systems and Applications: Invited Key note speaker, "Deterministic vs. Stochastic Modeling: A Realistic View," May 27, 1999, Atlanta, GA.

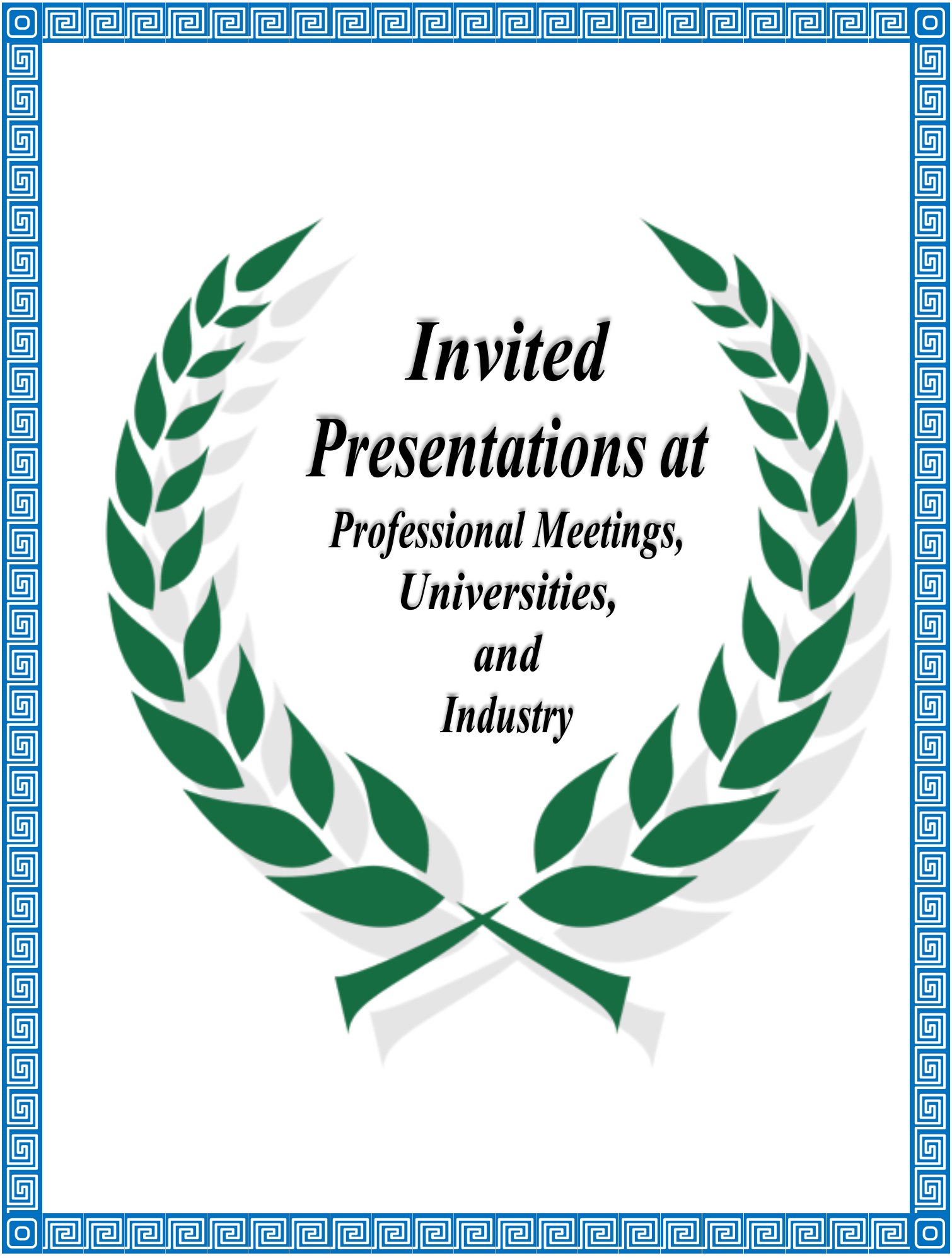
36. Greek-American Union, Athens, Greece, July 22, 1999. Invited address: "Hellenism in the West—A State of the Art Approach for Revival".

37. University of Patras/Computer Engineering & Informatics, Invited Presentation: "Nonlinear Stochastic Systems," July 28, 1999.

38. International Conference on Recent Advances in Mathematical Sciences and Application, RAMSA-21, 12/20/21, India, "Mathematical Science and Global Warming".

39. University of Piraeus and Hellenic Naval Academy, 1/21/22, Greece, "The art and Method of Developing Real Data Driven Models in Health and Environmental Sciences".

40. University of Leiden, Mathematics Institute, The Netherland, "Predictive Analytical Model for Data Science. Stochastic Intensity Function and Stochastic Monitoring Indicator of the Power Law Process", April 22, 2023.


Invited
Presentations at
Professional Meetings,
Universities,
and
Industry

INVITED PRESENTATIONS AT PROFESSIONAL MEETINGS, UNIVERSITIES & INDUSTRY

1. Second Asilomar Conference on Circuits and Systems, "**Stochastic Absolute Stability of a Nonlinear Differential System**," October 30-November 1, 1968; Naval Post-Graduate School, Monterey, CA.

2. University of Florida, "**Stability Properties of Stochastic Integro-Differential Systems**," Jan. 1969, Gainesville, FL.

3. Virginia Polytechnic Institute and State University, "**Stochastic Integral Equations and Applications**," Feb. 1969, Blacksburg, VA.

4. The First International Conference on the Theory and Applications of Differential Games, "**On the Definition of a Stochastic Differential Game**," Sept. 29-Oct. 1, 1969, Amherst, MA, with E. Roxin.

5. The Virginia Academy of Science, "**The Origin and Application of Stochastic Integral Equations**," May 6-8, 1970, Richmond, VA, Virginia Journal of Science, Vol. 21, No. 3, p. 161, with W.J. Padgett.

6. Sixteenth Conference on the Design of Experiments in Army Research, Development and Testing, "**Ordinary and Empirical Bayes Approach to Estimation of Reliability in the Weibull Life Testing Model**," Oct. 21-23, 1970, Fort Lee, VA, with G. Canavos.

7. Southern Regional Education Board, Summer Research Conference, "**Random Equations with Application to Current Problems**," June 1971, Mountain Lake, VA.

8. 15th Annual Technical Conference, American Statistical Association, "**Forecasting Models from Non-Stationary Time Series with Some Applications**," Oct. 14-15, 1971, Charlotte, NC.

9. 18th Conference on the Design of Experiments, "**Statistical Modeling of Propagation Loss Data**," Oct. 1972, Aberdeen, MD.

10. 18th Conference on the Design of Experiments, "**Statistical Analysis of H.F. Oblique and Vertical Incidence Ionospheric Data**," Oct. 1972, Aberdeen, MD.

11. 19th Conference on the Design of Experiments, "**Statistical Analysis and Modeling of Path Loss Distance Dependency Information**," Oct. 1973, Rock Island, IL, with R. D'Accardi.

12. University of Florida, "**On the Probability Distribution of the Logarithm of the Sum of Two Log-Normal Random Variables with Applications to Communication Engineering**," Nov. 1, 1973, Gainesville, FL.

13. Rice University, "**A Procedural Approach to Forecasting Models from Non-Stationary Time Series**," Dec. 4, 1973, Houston, TX.

14. M.D. Anderson Hospital and Tumor Institute, "**Stochastic Modeling of Chemotherapy Models**," Dec. 6, 1973, Houston, TX.

15. Annual American Mathematics Society Meeting, "**On the Probability Distribution of the Sum of Logarithms of Two Correlated Log-Normal Variates**," Jan. 22, 1974, San Francisco, CA.

16. The Mathematical Association of America, Florida Section, "**Today's Probability and Statistics-Methodology and Purpose**," March 9, 1974, Gainesville, FL.

17. NASA-Langley Research Center, "**Stochastic Modeling of Biological Systems," and "A Procedural Approach to Forecasting**," March 14-15, 1974, Hampton, VA.

18. American Statistical Association, Eastern Region, "**Recent Developments in Stochastic Modeling of Pharmacokinetics**," March 22, 1974, Tallahassee, FL.

19. 20th Conference on the Design of Experiments in Army Research, Development and Testing, "**Forecasting Models for Mosquito Population Behavior**," Oct. 1974, Fort Belvoir, VA, with S. Smeach.

20. Department of Mathematics and Computer Science, University of South Carolina, "**Recent Developments on the Theory and Applications of Random Integral Equations**," and "Bayesian Approach to Reliability," Oct. 21-22, 1974, Columbia, SC.

21. Annual Meeting of American Mathematical Society (81st), "**Existence and Stability Behavior of a Class of Stochastic Integral Equations**," Jan. 23-27, 1975, Washington, D.C.

22. SREB Summer Research Conference, "**Mathematical Formulation of Compartmental Models-Drug Distribution Behavior**," June 25, 1975, Biloxi, Mississippi.

23. University of Texas at Arlington, "**The Formulation and Analysis of Compartment Models in Drug Behavior**," Nov. 3, 1975, Arlington, TX.

24. University of Texas at Arlington, "**Reliability Analysis from a Bayesian Point-of-View**," Nov. 5, 1975, Arlington, TX.

25. The University of Texas Health Science Center at Dallas, "**Stochastic Modeling of Pharmacokinetic Problems**," Nov. 18, 1975, Dallas, TX.

26. Southern Methodist University, "**Robustness Analysis in Bayesian Settings of the Weibull Failure Model**," Nov. 18, 1975, Dallas, TX.

27. Conference on the Theory and Applications of Reliability with Emphasis on Bayesian and Nonparametric Methods, "**Bayes Estimation of Reliability for the Lognormal Failure Model**," Dec. 15-18, 1975, University of South Florida, Tampa, FL, with W.J. Padgett.

28. Conference on the Theory and Applications of Reliability with Emphasis on Bayesian and Nonparametric Methods, "**Comparison of Bayesian Estimates of MTBF for Fitted Priors of Life Data**," Dec. 15-18, 1975, University of South Florida, Tampa, FL, with J. Higgins.

29. Conference on the Theory and Applications of Reliability with Emphasis on Bayesian and Nonparametric Methods, "**Bayesian Analysis of the Extreme Value Distribution**," Dec. 15-18, 1975, University of South Florida, Tampa, FL, with A.N.V. Rao.

30. Armed Forces Communication and Electronics Association, "**Modeling and Analysis Techniques Applicable to Man-Machine Interface Problems**," April 22, 1976, Fort Monmouth, NJ, with R. D'Accardi.

31. Rice University, Department of Mathematical Sciences, "**New Directions in Graduate Education in Mathematical Sciences**," Oct. 1976, Houston, TX.

32. Rice University, "**On the Behavior of Nonlinear Stochastic Discrete Systems**," Nov. 8, 1976, Houston, TX.

33. University of Texas at Arlington, "**A New Look at Compartmental Analysis for Pharmacokinetic Systems**," Nov. 110, 1976, Arlington, TX.

34. American Mathematical Society Regional Meeting, Modeling in Biological Systems, "**Compartmental Analysis of Pharmacokinetics**," Nov. 19-20, 1976, Columbia, SC.

35. University of Michigan, "**The Theory and Applications of Pharmacokinetic Systems**," Jan. 20, 1977, Ann Arbor, Michigan. 36. U.S. Army Communications Center, "Nonstationary Time Series Analysis of Ionospheric Data," Feb. 1977, Fort Monmouth, NJ.

36. Case Western Reserve University, "**The Theory and Applications of Stochastic Nonlinear Control Systems**," Feb. 8, 1977, Cleveland, OH.

37. Gaithersburg, Maryland, Bureau of Standards, "**Interface of Numerical Analysis and Statistics: A Statistician's Point-of-View**," April 15, 1977.

38. University of Alberta, Visiting Scholar, "**Theoretical Modeling of Nonlinear Stochastic Discrete Systems**," May 5, 1977, Edmonton, Canada.

39. University of Alberta, Visiting Scholar, "**New Approach to Drug Concentration Behavior in Compartmental Analysis**," May 6, 1977, Biomathematical Colloquium, Edmonton, Canada.

40. Western Carolina University, Department of Mathematics, "**Compartmental Analysis with Applications to Pharmacokinetics**," Oct. 5, 1977, Cullowhee, NC.

41. Western Carolina University, Department of Mathematics, "**Recent Developments on the Theory and Applications of Random Equations**," Oct. 6, 1977, Cullowhee, NC.

42. 23rd Conference on Design of Experiments, Army Research, Development and Testing, "**Analysis of Man-Machine Interface Information in Current Communication Systems**," Oct. 1977, Monterey, CA, with R. D'Accardi.

43. Rollins College, "**The Structuring of an Undergraduate Curriculum Program in Mathematical Sciences**," May 11, 1978, Winter Park, FL.

44. Rollins College, "**Stochastic Modeling in Life Sciences**," May 11, 1978, Winter Park, FL.

45. ISAA Regional Meeting, "**Statistics and Chemical Industries**," March 1979, Tampa, FL.

46. The Biometric Society, "**Delay Effects in the Compartmental Analysis of Pharmacokinetic Systems**," March 11-14, 1980, Charleston, SC.

47. Society of Industrial and Applied Mathematics, "**On Nonparametric Density Estimation**," March 20-22, 1980, Birmingham, Alabama.

48. International Conference on Nonlinear Phenomena in Mathematical Sciences, "**Statistical Formulation on Some Problems in Pharmacokinetics**," June 18, 1980, Arlington, TX.

49. U.S. Navy Underwater Sound Center, "**Sensitivity Analysis of Anti-Submarine Warfare Systems**," June 1985, New London, Conn.

50. University of Texas at Arlington, "**New Adoptive Forecasting Methods**" and "**Time Series Analysis and Applications to Heuristic Forecasting Analysis**," July 1985, Arlington, TX.

51. U.S. Underwater Sound Laboratory, "**Statistical Analysis and Modeling Applied to Submarine Electromagnetic (EM) Systems**" and "**Parametric vs. Nonparametric Analysis: Working with Small Data Samples**," March 1986, New London, Conn.

52. Excel Corporation, "**Stochastic Models for Strategic Planning**," Sept. 1986, Patterson, NJ.

53. AT&T Networks, "**System Reliability: A Bayesian Approach**," Oct. 1986, Morristown, NJ.

54. Polytechnic Institute of New York, "**A Stochastic Model for Allocation Analysis**," Nov. 1986, Brooklyn, NY.

55. Adill, Inc., "**Some New Techniques in Short-Term Forecasting**," Dec. 1986, New York City.

56. University of Texas at Arlington, "**Stability of Nonlinear Stochastic Systems**," and "**The Choice of the Prior Density in Bayesian Analysis**," July 1986, Arlington, TX.

57. The 1987 Annual Forum of Toxicology, "**Passive Smoking and Cancer**," Jan. 1987, Washington, D.C.

58. Bell Communications Research, "**Heuristic Procedures for Estimating Time Series Models for Forecasting**," Sept. 1987, Red Bank, NJ.

59. Institute of Mathematical Statistics, "**Nonlinear Stochastic Control Systems**," June 1988, University of Hawaii, Honolulu, Hawaii.

60. American Mathematical Society, "**Optimal Control of Nonlinear Systems Under Boundary Constraints**," Jan. 1990, Louisville, Kentucky, with A.N.V. Rao.

61. Florida Institute of Technology, Department of Applied Mathematics, "**Recent Developments in Reliability Growth Analysis**," March 22, 1994, Melbourne, FL.

62. First International Congress of Nonlinear Analysts, "**On the Stability Behavior of Nonlinear Stochastic Systems**," Aug. 24-29, 1992, Tampa, FL.

63. First International Congress of Nonlinear Analysts, "**Nonparametric Probability Density Estimation of Bimodal Data**," Aug, 24-29, 1992, Tampa, FL.

64. Northern Illinois University, graduate school keynote speaker, "**Product Quality: Taguchi Approach/Reliability Growth," and "Reliability Growth Modeling**," Feb. 24-25, 1994, DeKalb, IL.

65. IEEE Southeastcon, "**Nonparametric Approach to Reliability Analysis**," April 10-13, 1994, Miami, FL.

66. The XIV IMACS World Congress on Computation and Applied Mathematics, "**On the Nonparametric Probability Density Estimation of Bimodal Systems**," Georgia Tech, July 11-15, 1994, Atlanta, GA.

67. Second International Conference on Dynamic Systems and Applications, "**A Dynamic Approach to Reliability Modeling**," May 24-27, 1995, Atlanta.

68. International Conference on Nonlinear Problems in Aviation and Aerospace, " **Nonparametric Reliability Modeling for Parallel Systems**", JSAA, 20(1), pp.185-197, 2002, with K. Liu.

69. International Conference on Nonlinear Problems in Aviation and Aerospace, "**Accelerated Life-Testing Model Building with Box-Cox Transformations**," with P. Qiu, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

70. International Conference on Nonlinear Problems in Aviation and Aerospace, "**The Effect of the Loss Function on Bayesian Reliability Analysis**," with V. Camara, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

71. International Conference on Nonlinear Problems in Aviation and Aerospace, "**A Comparison of Parametric Analysis of Lifetime Data**," with M. Makri, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

72. International Conference on Nonlinear Problems in Aviation and Aerospace, "**Parameter Estimation of Power Law Process**," with H. Qiao, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

73. International Conference on Nonlinear Problems in Aviation and Aerospace, "**Sensitivity Analysis of Reliability Growth Model**," with A.N.V. Rao, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

74. International Conference on Nonlinear Problems in Aviation and Aerospace, "**Bayesian Reliability Estimates for Market Systems Lifetime Data**," with H. Tang, Embry-Riddle Aeronautical University, FL, May 9-11, 1996.

75. Florida Institute of Technology, Applied Mathematics Program, "**Recent Developments in Bayesian and Empirical Bayesian Reliability**," May 2, 1997.

76. University of South Florida/Math Clubs, "**Basic Philosophy of Statistical Thinking and Opportunities in Statistics**," April 9, 1997.

77. AHEPA annual meeting – Orlando, Florida, invited speaker, "**Supporting Hellenism at Institutions of Higher Learning**", Aug. 1998.

78. U.S. Daughters of Penelope Organization invited speaker, "**The Value of Philanthropic Contributions for University Education**", Orlando, FL, Aug. 1998.

79. USF – Hellenic Student Association/Tampa Bay, "**USA and Cyprus Relations**", Oct. 9, 1998.

80. Pinellas County Rotary Club invited speaker "**Frontiers of Gradate Education in the USA**", Nov. 1998.

81. Third International Conference on Dynamic Systems and Applications, "**Parametric vs. Nonparametric Mathematical Modeling**," Morehouse College, Atlanta, Georgia, May 26-29, 1999.

82. Third International Conference on Dynamic Systems and Applications: Keynote speaker, "**Deterministic vs. Stochastic Modeling: A Realistic View**," May 27, 1999, Atlanta, GA.

83. University of Patras/Computer Engineering & Informatics, Annual Scientific Speaker "**Nonlinear Stochastic Systems**," July 28, 1999.

84. ICNPAA, "**Nonparametric Empirical Bayes Estimation Under-asymmetric Losses**," May 15-16, with G. Yanev, Melbourne, Florida.

85. National Statistical Institute of Greece, "**Parametric and Nonparametric Statistical Modeling of Economic and Environmental Problems**." January 15, 1998, Athens, Greece.

86. Aiglon World Institute, "**Recent Developments on Bayesian and Nonparametric Methods in Reliability**." October 17-18, 1998, Englewood Cliffs, N.J.

87. Florida Institute of Technology, "**Reliability Growth and the Power Law Process: Product Quality**" Dept. of Applied Math. FIT, Nov. 12, 1998, Melbourne, Florida.

88. Third International Conference on Dynamic Systems and Applications: Invited Key note speaker, "**Deterministic vs. Stochastic Modeling: A Realistic View**," May 27, 1999, Atlanta, GA.

89. International Society Bayesian Analysis, ISBA, May 28-June 1 2000, "**Bayesian Analysis of Imaging Data**", Heraklion, Crete, 6th World Meeting.

90. International Society Bayesian Analysis, ISBA, May 28-June 1, 2000. Co-Invited Presentation, Heraklion, Crete, 6th World Meeting.

91. AFGLC 5th Educational Forum, "**AFGLC Vision and Commitments: Future Plans and Developments**", March 10, 2001.

92. University of California, Davis, "**Nonparametric Modeling of Difficult Data**", May 19-20, 2001.

93. University of Patras, Information Systems Center, "**Software Reliability: Ordinary and Bayesian Approach**," Greece, July 17, 2001.

94. International Conference on Nonlinear Problems in Aviation and Aerospace, ICNPAA, Florida Institute of Technology, "**An Overview of Parametric vs. Nonparametric Modeling**", May 15-16, 2002, Melbourne, Florida.

95. International Conference on Statistics and Probability, Northern Illinois University, "**Empirical Bayes Point Estimation for Borel-Tanner Distribution**", June 14-16, 2002, Dekalb, Illinois.

96. ICNPAA, "**Software Reliability Models**" FIT, May 15-16, 2002, with S.Nadarajah, Melbourne, Florida.

97. University of California, Davis, "**Special Workshop on Asymptotic Methods in Statistics and Probability**." Chaired session on nonparametric failure rate methods. Presented the following invited talks: "**Nonparametric Modeling**," May 19-20, 2002.

98. International Conference on Nonlinear Problems in Aviation and Aerospace, ICNPAA, Florida Institute of Technology, "**An Overview of Parametric vs. Nonparametric Modeling**", May 15-16, 2002, Melbourne, Florida.

99. International Conference on Statistics and Probability, Northern Illinois University, "**Empirical Bayes Point Estimation for Borel-Tanner Distribution**", June 14-16, 2002, Dekalb, Illinois.

100. ICNPAA, "**Software Reliability Models**" FIT, May 15-16, 2002, Melbourne, Florida.

101. ICNPAA. "Nonparametric Empirical Bayes Estimation **Under Asymmetric Losses**," May 15-16, 2002, with G. Yanev, Melbourne, Florida.

102. International Conference on Dynamic Systems and Applications, ICDSA, Title - "**Extreme Value Theory and Software Reliability**", May 21-24, 2003, IFNA, Atlanta, Georgia.

103. ICDSA, Title- "**A Simulation Study of Renewal Processes with Infinite Means**", with K.V.Mitov, May 21-24, 2003, IFNA, Atlanta, Georgia.

104. International Conference on Reliability and Survival Analysis (ICRSA 2003), Title- "**Extreme Value Models for Software Reliability**" June 21-24, 2003, University of South Carolina, Columbia, S.C.

105. ICDSA, Title - "**Bayesian Analysis of Extreme Value Models for Software Reliability**", with A. N. V. Rao, May 21-24, 2003, IFNA, Atlanta, Georgia.

106. USF Distinguished University Professor Lecture Series, "**The Spirit, Philosophy and Application of Statistics**", Nov. 29, 2005.

107. College of Public Heath – USF, "**Statistical Analysis and Modeling of Environmental Problems: Coral Reefs**", April 2006.

108. The 5th International Conference on Dynamic Systems and Applications, ICDSA5, Title – "**Theory of Records for the Gumbel Probability Distribution**", with A. K. Mbah, May 30 to June 02, 2007, IFNA, Atlanta, Georgia.

109. The 5th International Conference on Dynamic Systems and Applications, ICDSA5, Title – "**Theory and Applications of the Truncated Skew Laplace Distribution**", with G. R. Aryal, May 30 to June 02, 2007, IFNA, Atlanta, Georgia.

110. The 5th International Conference on Dynamic Systems and Applications, ICDSA5, Title – "**New Nonstationary Time Series Models with Economic Applications**", with S. H. Shih, May 30 to June 02, 2007, IFNA, Atlanta, Georgia.

111. The 5th International Conference on Dynamic Systems and Applications, ICDSA5, Title – "**Statistical Modeling of Global Warming**", May 30 to June 02, 2007, IFNA, Atlanta, Georgia.

112. USF College of Medicine/Dept. of Orthopedic Surgery, "**Statistical Analysis and Modeling of Medical Data**", Sept. 7, 2007.

113. Florida Fish and Wildlife Research Institute, St. Petersburg, FL, "**Karenia Brevis: Looking at Red Tide from a Statistical Perspective**". Dec 10, 2007, with R. D. Wooten.

114. Fifth International Conference on Dynamical Systems and Applications, Morehouse College, Atlanta, GA, May 30, 2008, "**Statistical Modeling of Global Warming**."

115. The Fourth International Conference on Neural, Parallel and Scientific Computations, CAU – Center for Theoretical Studies of Physical Systems, Atlanta, GA, August 11, 2010, "**Global Warming: Myth, Reality, Copenhagen and Developments**."

116. The University of Connecticut, Storrs, Connecticut, April 4, 2010, "**Global Warming: Myth and Reality**."

117. Sixth International Conference on Dynamical Systems and Applications, May 25, 2011, Atlanta, GA, "**Cancer Research and Mathematical Sciences**."

118. Sixth World Congress of IFNA 2012, Athens, Greece, June 25, 2012, "**Global Health, Environment, Energy and Economy Through the Art of Mathematical Sciences**," "**Data Driven Statistical Models to Understand Cancer's Behavior: Risk Factors" and "Global Warming: Myth or Reality?**"


Research
Presentations

RESEARCH PRESENTATIONS

1. The 74th Annual Meeting of the American Mathematical Society, " On the Application of the Topological Principle of Wazewski to Control Systems," Jan. 23-26, 1968, San Francisco, CA.

2. The 655th Meeting of the American Mathematical Society, "Stability of Controlled Motion," April 10-13, 1968, New York.

3. The Institute of Mathematical Statistics, Summer Meeting, "Stochastic Absolute Stability of a Stochastic Differential System," Aug. 24-26, 1968, Madison, Wisc.

4. The 73rd Summer Meeting of the American Mathematical Society, "On a Stochastic Integral Equation of the Volterra Type," Aug. 27-30, 1968, Madison, Wisc.

5. Second Hawaii International Conference on Systems Sciences, "A Nonlinear Automatic System with a Random Parameter," Jan. 20-22, 1969, Honolulu, Hawaii.

6. The 75th Annual Meeting of the American Mathematical Society, "Eventual Asymptotic Stability of Control Systems," Jan. 24-26, 1969, New Orleans, LA, with V. Lakshmikantham.

7. The 3rd Annual Princeton Conference on Information Sciences and Systems, "On Some Nonlinear Differential Systems with Random Parameters," March 27-28, 1969, Princeton University.

8. The 656th Meeting of the American Mathematical Society, "Functional Differential Inequalities and Stability Near Sets," April 2-5, 1969, New York, with V. Lakshmikantham.

9. The 656th Meeting of the American Mathematical Society, "Integro-Differential Equations of the Volterra Type," April 2-5, 1969, New York, with M.R.M. Rao.

10. University of Texas at Austin, the 12th Midwest Symposium on Circuit Theory, "Nonlinear Differential Systems with Lag-Time," April 22-23, 1969, Austin, TX, with A.N.V. Rao.

11. The 76th Annual Meeting of the American Mathematical Society, "Stability of Stochastic Integral Equations of the Volterra Type," Jan. 1970, San Antonio, TX.

12. The Virginia Academy of Science, "Bayesian Estimation of Reliability in the Gamma Life Testing Model," May 6-8, 1970, Richmond, VA, Virginia Journal of Science, Vol. 21, No. 3, p. 158, with G. Canavos.

13. The Virginia Academy of Science, "Bayesian Estimation of Reliability in the Gamma Life Testing Model," May 6-8, 1970, Richmond, VA, Virginia Journal of Science, Vol. 21, No. 3, p. 159, with F. Fuller.

14. The Virginia Academy of Science, "Canonical Expansion of the Bivariate Negative Binomial Distribution," May 6-8, 1970, Richmond, VA, Virginia Journal of Science, Vol. 21, No. 3, p. 160.

15. 1970 Annual Meeting of the American Statistical Association, "The One-Organ Stochastic Model for Chemotherapy," Dec. 27-30, 1970, Detroit, Michigan, with W.J. Padgett.

16. 1970 Annual Meeting of the American Statistical Association, "Bayesian Analysis of the Weibull Distribution as Applied to Life Testing," Dec. 27-30, 1970, Detroit, Michigan, with G. Canavos.

17. The 1971 IEEE Symposium on Reliability, "Ordinary and Empirical Bayes Approach to Estimation of Reliability in the Gamma Life Testing Model," Jan. 14, 1971, Washington, D.C., with G. Canavos.

18. The 77th Annual Meeting of the American Mathematical Society, "On a Stochastic Integral Equation of the Fredholm Type," Jan. 21-25, 1971, Atlantic City, NJ, with W.J. Padgett.

19. The 77th Annual Meeting of the American Mathematical Society, "On the Solution of a Random Integral Equation by the Method of Stochastic Approximation," Jan. 21-25, 1971, Atlantic City, NJ, with W.J. Padgett.

20. The 5th Annual Princeton Conference on Information Sciences and Systems, "A Stochastic Discrete Volterra Equation with Application to Stochastic Systems," March 25-26, 1971, Princeton University, with W.J. Padgett.

21. The 684th Meeting of the American Mathematical Society, "Random Perturbation of Stochastic Integral Equations of the Fredholm Type," April 7-10, 1971, New York, with W.J. Padgett.

22. Institute of Mathematical Statistics, "Solutions of a Random Integral Equation of the Volterra Type: Almost Sure and Mean Square Convergence of Successive Approximations," April 21-23, 1971, Penn State, University Park, PA, with W.J. Padgett.

23. Institute of Mathematical Statistics, "On a Random Discrete Fredholm Equation," April 21-23, 1971, Penn State, University Park, PA.

24. Institute of Mathematical Statistics, "On a Nonlinear Perturbed Stochastic Integral Equation," April 21-23, 1971, Penn State, University Park, PA, with J.S. Milton.

25. The Virginia Academy of Science, "On the Solution of a Random Integral Equation in Hilbert Space," May 1971, Blacksburg, VA, with W.J. Padgett.

26. The Virginia Academy of Science, "Minimum Variance Unbiased Estimator of the Reliability Under the Truncated Weibull Failure Model," May 1971, Blacksburg, VA, with T. Jones.

27. The Virginia Academy of Science, "Life Testing and Reliability Estimation for the One Parameter Extreme Value Distribution," May 1971, Blacksburg, VA, with J. Godbolt.

28. Institute of Mathematical Statistics, "Sufficient Conditions for the Existence of a Random Solution to Some Stochastic Integral Equations," Eastern Regional, April 17-19, 1972, Blacksburg, VA, with W.J. Padgett.

29. Institute of Mathematical Statistics, "On an Ito-Doob Type of Stochastic Integral Equation," Eastern Regional, April 17-19, 1972, Blacksburg, VA, with J.S. Milton.

30. American Mathematical Society, "Sufficient Conditions for the Existence of a Random Solution of a Stochastic Integral Equation," Eastern Regional, Oct. 28, 1972, Providence, RI, with A.N.V. Rao.

31. American Mathematical Society, "On the Existence and Asymptotic Behavior of Solutions of a Nonlinear Stochastic Integro-Differential Equation," Eastern Regional, Oct. 28, 1972, Providence, RI, with A.N.V. Rao.

32. American Mathematics Society, Spring Regional, "On Estimating the Expected Behavior of Stochastic Epidemiological Models Applicable to Small Populations," March 8, 1974, Gainesville, FL, with T. Smith.

33. The 20th Conference on the Design of Experiments in Army Research, Development and Testing, "Analytical Approach to Robustness for Bayesian Developments in Reliability," Oct. 1974, Fort Belvoir, VA, with A.N.V. Rao.

34. Annual Meeting of American Mathematical Society, (81st), "Bayesian Estimation of Life Parameters and Reliability Functions in the Weibull Failure Model," Jan. 23-27, 1975, Washington, D.C., with A.N.V. Rao.

35. Annual Meeting of American Mathematical Society, (81st), "On Investigation for Comparison of Stochastic Branching Processes," Jan. 23-27, 1975, Washington, D.C., with T. Smith.

36. Annual Meeting of American Mathematical Society, (81st), "On the Existence of a Random Solution of a Nonlinear Perturbed Random Integral Equation," Jan. 23-27, 1975, Washington, D.C., with J.S. Milton.

37. Florida Academy of Sciences, "Spectral Analysis of Mosquito Population Behavior," March 20-22, 1975, Florida Southern College, with S. Smeach.

38. Florida Academy of Sciences, "Estimation of the Three Parameters of the Weibull Distribution," March 20-22, 1975, Florida Southern College, with R. Welch.

39. Florida Academy of Sciences, "Bayesian Analysis of the Weibull Failure Model Under Stochastic Variation of the Shape and Scale Parameters," March 20-22, 1975, Florida Southern College, with A.N.V. Rao.

40. The 82nd Annual Meeting, AMS, "Non-Gaussian Discriminant Analysis," Jan. 22-25, 1976, San Antonio, TX, with R. Welch.

41. The 82nd Annual Meeting, AMS, "A Discrete Ito-Doob Type of Stochastic Equation and Applications to Stochastic Systems," Jan. 22-25, 1976, San Antonio, TX, with G. Schultz.

42. The 82nd Annual Meeting, AMS, "On the Study of Two Interacting Populations, One of Which Acts Independently of the Other," Jan. 22-25, 1976, San Antonio, TX, with T. Smith.

43. The 82nd Annual Meeting, AMS, "Bayesian Sensitivity Analysis of the Poisson Failure Model," Jan. 22-25, 1976, San Antonio, TX, with A.N.V. Rao.

44. The 82nd Annual Meeting, AMS, "Mathematical Modeling of Intellectual Development," Jan. 22-25, 1976, San Antonio, TX, with M.W. Denker and R. Welch.

45. Symposium on the Application of Statistics, "The Effect of the Loss Function on Bayesian Estimation," Wright State University, Dayton, OH, June 1976, with J.J. Higgins.

46. Annual Meeting of the American Statistical Association, "Robustness of Bayes Estimates of Failure Intensity for a Class of Renewal Counting Processes," Aug. 1976, Boston, Mass., with J.J. Higgins.

47. The 136th Annual Meeting of the American Statistical Association, "A Stochastic Differential Model for the Effects of Family Configuration on Intelligence," Aug. 23-26, 1976, Boston, Mass., with M.W. Denker and R. Welch.

48. The 9th International Biometric Conference, "Robustness of the Bayes Optimal Discriminant Procedure," Aug. 23-26, 1976, Boston, Mass., with R. Welch.

49. Biometric Section of American Statistical Session, "A Random Differential Equation Approach to the Probability Distribution of BOD and DO in Streams," Aug. 22-27, 1976, Boston, Mass., with W.J. Padgett.

50. Symposium on the Application of Statistics, "The Effect of the Loss Function on Bayesian Estimation," June 1976, Wright State University, Dayton, OH.

51. American Statistical Association, "Robustness of Bayes Estimates of Failure Intensity for a Class of Renewal Counting Process," Aug. 1976, Boston, Mass., with J.J. Higgins.

52. Biometric Section of American Statistical Session, "A Random Differential Equation Approach to the Probability Distribution of BOD and DO in Streams," Aug. 22-27, 1976, Boston, Mass., with W.J. Padgett.

53. American Mathematical Society Regional Meeting, "Pattern Recognition Using Nonparametric Density Estimation," University of South Carolina, Columbia, SC, Nov. 19-20, 1976, with J. Turner.

54. Annual Meeting of Florida Chapter of ASA, "Study of Demographic Factors in the Transmission of Disease," Feb. 25-26, 1977, Miami, FL, with T. Smith.

55. Annual Meeting of Florida Chapter of ASA, "Preliminary Results for Empirical Bayes Approach to Discriminant Analysis," Feb. 25-26, 1977, Miami, FL, with R. Welch.

56. Annual Meeting of Florida Chapter of ASA, "An Application of Hierarchy Theory to Mental Health Care Delivery Systems," Feb. 25-26, 1977, Miami, FL, with R. Welch and M. Denker.

57. American Heart Association, Florida Chapter, "Rapid Kinetic Determination of LDH Isozymes in Serum and Prediction of Prognosis," May 20, 1977, St. Petersburg, FL, with L. Bernstein.

58. The 84th Annual Meeting, AMS, "On the Behavior of Grouping Sets from Exponential Distributions," Jan. 3-8, 1978, Atlanta, GA, with C. Church.

59. The 84th Annual Meeting, AMS, "Deriving Parameter Bound for a Stochastic Ecological Model," Jan. 3-8, 1978, Atlanta, GA, with R. Jernigan and J. Turner.

60. The 84th Annual Meeting, AMS, "Bayesian Analysis of the Alpha Failure Model," Jan. 3-8, 1978, Atlanta, GA, with D.C. Koutras.

61. The 84th Annual Meeting, AMS, "Multivariate Non-Gaussian Bayes Discriminant Analysis," Jan. 3-8, 1978, Atlanta, GA, with R. Welch.

62. The 84th Annual Meeting, AMS, "Stability of McShane Systems," Jan. 3-8, 1978, Atlanta, GA, with A.N.V. Rao.

63. The 84th Annual Meeting, AMS, "Nonparametric Classification Scheme for the Detection of Myocardial Infarction," Jan. 3-8, 1978, Atlanta, GA, with J. Turner and L. Bernstein.

64. Annual Meeting of ASA, "On the Effect of Sampling Errors in an Empirical Bayes Estimation Procedure," Aug. 15-18, 1977, Chicago, IL, with J. Higgins.

65. Annual Meeting of ASA, "Bayesian Pattern Recognition with a Mean Square Error Loss Function, Including Some Empirical Bayes Procedures," Aug. 15-18, 1977, Chicago, IL, with R. Welch.

66. Annual Meeting of ASA, "Detection of Myocardial Infarction Using Blood Enzymes," Aug. 15-18, 1977, Chicago, IL, with L. Bernstein and J. Turner.

67. Annual Meeting of ASA, "Sexual Variation in the Transmission of Disease," Aug. 15-18, 1977, Chicago, IL, with T. Smith.

68. Annual Meeting of ASA, "On the Study of Two Interacting Populations, One of Which Varies Independently of the Other," Aug. 15-18, 1977, Chicago, IL, with T. Smith.

69. Regional Meeting of ASA, "Sensitivity Analysis of a Bayesian Approach to the System Reliability of a New Vehicle System," March 3-4, 1978, Clearwater Campus of St. Petersburg Junior College, with D. Koutras.

70. Regional Meeting of ASA, "Statistical Properties of Linear Systems," March 3-4, 1978, Clearwater Campus of St. Petersburg Junior College, with A.N.V. Rao and G. Schultz.

71. SIAM Regional Meeting, "Nonparametric Regression Analysis for Star Catalogue Reduction," March 1979, Tallahassee, FL, with S. Bean.

72. American Statistical Association Regional Meeting, "Developments in Nonparametric Density Estimations," April 1979, Pensacola, FL.

73. Annual Meeting of the American Mathematical Society, "An Algorithm for the Design of Multi-Spectral Sensors," Jan. 1979, Biloxi, Miss., with J. Turner.

74. Joint National Meeting TIMS/ORSA, "Empirical Bayes Estimation for the Alpha Failure Model," April 1979, New Orleans, LA, with A. Rust.

75. Joint National Meeting TIMS/ORSA, "Optimal Trading Strategies in the Commodity Future Market," April 1979, New Orleans, LA, with A. Rust.

76. JASA National Meeting, "On Nonparametric Regression Analysis," Aug. 1979, Washington, D.C., with S. Bean.

77. American Meteorological Society, "Time Series Modeling of Rainfall Density Information," Oct. 1979, Banff, Alberta, Canada, with R. D'Accardi.

78. Joint Meeting, 140th Meeting of ASA and The Biometric Society, ENAR and WNAR, "A Quasi-Bayes Estimate for a Reliability Growth Model," Aug. 11, 1980, Houston, TX, with J. Higgins.

79. Florida Academy of Science, "Development of Some Modified Maximum Likelihood Estimators of the Weibull Process," March 22-24, 1990, FIT, Melbourne, FL, with A.N.V. Rao.

80. Florida Academy of Science, "Statistical Modeling and Analysis of a Passive Smoking Study," March 22-24, 1990, FIT, Melbourne, FL.

81. Florida Academy of Science, "Empirical Bayes Approaches to Estimation," March 22-24, 1990, FIT, Melbourne, FL, with P. DesRoche.

82. Florida Academy of Science, "On the Theory and Applications of the Logistic Distribution," March 22-24, 1990, FIT, Melbourne, FL, with P. DiCroce.



Encyclopedia Articles

Encyclopedia 2011 Edition Articles

- Tsokos, C.P. (2011). **Generalized Extreme Value Family of Probability Distributions.** In: Lovric, M. (eds) International Encyclopedia of Statistical Science. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-04898-2

- Tsokos, C.P. (2011). **Parametric and Nonparametric Reliability Analysis.** In: Lovric, M. (eds) International Encyclopedia of Statistical Science. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-04898-2_439

Encyclopedia 2024 Edition Articles

- Tsokos, C.P. **Cyber Security: Recent Developments - Statistical Analysis and Predictive Models.** International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P, Abeywardana, Dilmi .G, **Analysis And Statistical Modeling of Thyroid Cancer.** International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P, Iluppangama, Malinda. **Statistical Modeling: Recent Developments on Parkinsons's Disease.** International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P, Chakraborty, Aditya. **Recent Developments on Pancreatic Cancer: New Innovations.** International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P, Abu-Sheha, Mohamed Ali M. **Recent Developments on Alzheimer's Disease.** International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P, Abu Sheha, Mohamed Ali M. **Global Warming Statistical Modeling of Emission Factors of Fossil Fuels Contributing Atmospheric Carbon Dioxide In United States, European Union, South Korea, Middle East And Africa**. International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P. **Reliability Growth Using the Power Low Process**, International Encyclopedia of Statistical Science (2024 ed).

- Tsokos, C.P. **Extreme Value Theory and Applications**, International Encyclopedia of Statistical Science (2024 ed).

Director of Doctoral Students

Major Professor

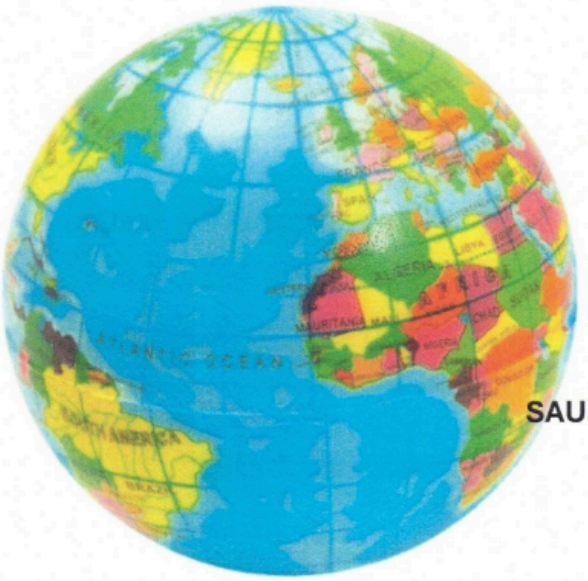
Mentor



PROFESSOR CHRIS P. TSOKOS, MAJOR PROFESSOR AND MENTOR OF DOCTORAL STUDENTS FROM 29 DIFFERENT COUNTRIES OF THE WORLD.



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ROMANIA

SAUDI ARABIA

SERBIA

SOUTH KOREA

SRI LANKA

TAIWAN

TURKEY

VIETNAM

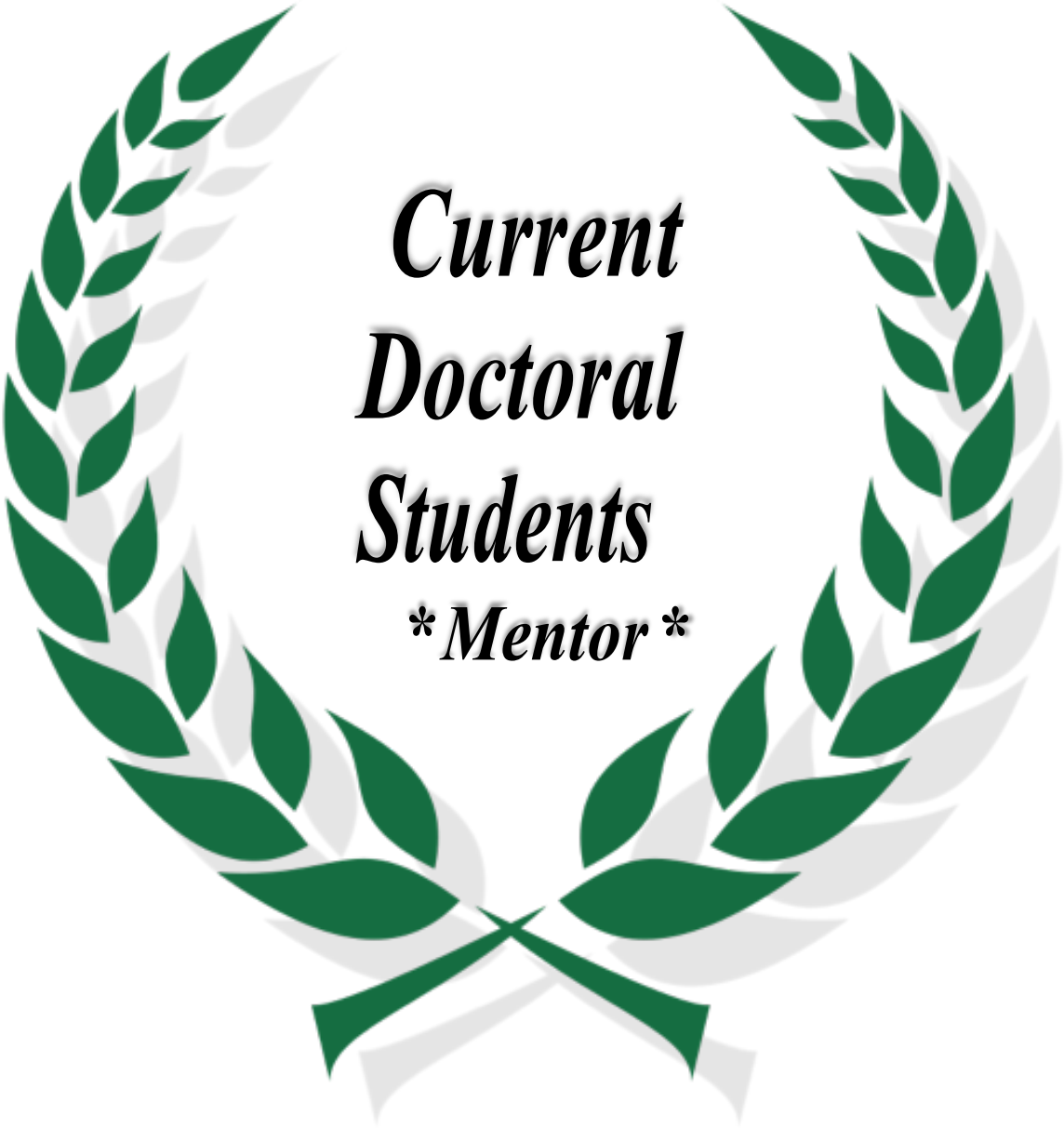
WEST AFRICA, SENEGAL

DIRECTOR OF DOCTORAL STUDENTS / MAJOR PROFESSOR

Virginia Polytechnic Institute and State University			
No	Name	Grad.	Position
1	William G. Nichols	1971	University of Alabama
2	Gene Ray Lowrimore	1971	EPA – Duke University
3	Sidney W. Hinkley	1971	Retired Government Executive
4	George C. Canavos	1971	Virginia Commonwealth University
5	Alex S. Papadopoulos	1972	North Carolina State University
6	W. J. Padgett	1972	South Carolina University
7	Janet S. Milton	1972	Radford University
8	Daniel McCollum	1972	University of Arkansas
9	Frank C. Fuller, Jr.	1972	Jackson State University
New York University (Polytechnic)			
10	Dennis Koutras	1973	International Executive Consultant, Greece
11	Richard D Accardi	1974	AT&T Executive: Deceased
12	Mel Appelbaum	1975	Retired CEO Executive
University of South Florida			
13	Richard L. Welch	1975	Executive – Grumman Corp.
14	Truett Smith	1976	Retired
15	George W. Schultz	1977	Retired
16	Ina P. Howell	1977	Florida International University
17	Ronald A. Tourgee	1978	Keene State University
18	Curtis Church	1979	Middle Tennessee Sate University
19	Robert W. Jernigan	1979	American University
20	Albert Rust, III	1979	Deseased
21	Steven Bean	1980	UCF – Retired
22	Christine H. Deans	1980	Mao Clinic, Minnesota
23	Albert D. Lies	1986	Retired: Business Executive
24	Hongzhu Qiao	1993	CEO, Everest Soft, Inc.

25	Vincent Camara	1997	St. Leos University
26	Kejian Liu	1999	Associate Director at Celgene / NYC
27	Henry Roberts	2000	Chief Statistician, CDC – Atlanta, GA
28	Lakshminarayan Rajaram	2006	USF – St. Petersburg
29	Rebecca Wooten	2006	President – Pedagogue
30	George Yanev	2001	University of Texas at El Paso
31	Gokarna Aryal	2006	Purdue University at Calumet
32	Louis R. Camara	2006	Georgia State University
33	Alfred K. Mbah	2007	USF – School of Public Health
34	Armando Hoare	2008	USF – St. Petersburg
35	Branko Miladinovic	2008	USF – Medical School
36	Shou Hsing Shih	2008	University of Dubai
37	Chunling Cong	2010	Chief Statistician, AIG, New York
38	Yong Xu	2011	Radford University
39	Keith Hackett	2011	Director of Peace Core, AFRICA
40	Carlos Molinares	2011	University of Puerto Rico
41	Dimitrios Vovoras	2011	University of Crete
42	Zahra Kottabi	2012	Strayer University Ft Myers
43	Iuliana Teodorescu	2013	University of South Florida
44	Keshav Pokhrel	2013	University of Michigan Dearborn
45	Ram C. Kafle	2014	Sam Houston State University
46	Bong Jin Choi	2014	University of North Carolina Chapel Hill
47	Yiu Ming Chan	2014	Florida State College
48	Nana Osei Bonsu	2014	Long Island University
49	Taysseer Sharaf	2015	University of Michigan Dearborn
50	Bhikhari Tharu	2016	Spelman College
51	Doo Young Kim	2016	Arkansas State University
52	Xing Wang	2016	University of Wisconsin, Madison
53	Sherlene Enriquez Savery	2016	University of Belize
54	Chao Gao	2017	Sanofi Pasteur
55	Muditha Devamitta Perera	2017	Texas Tech University, TX

56	Pubudu K. Kaluarachchi	2017	University of Miami, OH
57	Sasith Rajasorrian	2017	University of Miami, OH
58	Hansapani Rodrigo	2017	University of Texas, Rio Grande
59	Abolfazl Saghafi	2017	University of Sciences, PA
60	Mariam Habadi	2018	King Abdul-Aziz University
61	Michael Kotarinos	2018	Solarbeam Capitol, LLC
62	A K M Raquibul Bashar	2019	Research Associate
63	Mahdi Goudarzi	2019	Insight Data Science
64	W.R. Pokhrel	2018	Xavier University
65	Freeh Alenezi	2020	Majmaah University, SA
66	Lohuwa Mamudu	2021	University of California, Fullerton
67	Ruwani M. Fernando	2022	Moffitt Cancer Institute, FL
68	Aditya Chakraborty	2022	E. Virginia Medical School
69	Ranju Karki	2023	North Central Collage, IL
70	Jayanta Pokharel	2023	Siena Collage, NY
71	M. Abu-Sheha	2024	University of Missouri
72	Erasmus Tetteh-Bator	2024	Jackson State University



Current Doctoral Students

Mentor

CURRENT DOCTORAL STUDENTS

No	Names	Research Areas
1	**Sameer Anand**	Reliability and Time Series
2	**Dilmi Abeywardana**	Health Sciences, Finance and Social Media
3	**Thang Nguyen**	Health Science
4	**Jenkin Weng**	Insurance Modeling
5	**Ryan Yurosko**	Financial Systems
6	Nessrin Bukshin	Health Science
7	Malinda Iluppangama	Health Science and Finance

MASTER OF SCIENCE STUDENT

Has directed the M.S. degree program and/or thesis of more than 100 students.


Advisor/ Mentor
Major Professor
From
25 Countries
Around the Globe

PROFESSOR CHRIS P. TSOKOS, MAJOR PROFESSOR AND MENTOR OF DOCTORAL STUDENTS FROM 25 DIFFERENT COUNTRIES OF THE WORLD.



UNITED STATES OF AMERICA

BELIZE

BULGARIA

CANADA

CHINA

COLOMBIA

EGYPT

GHANA

GREECE

HONG KONG

INDIA

IRAN

ITALY

LIBYA

NEPAL

NIGERIA

PAKISTAN

ROMANIA

SAUDI ARABIA

SERBIA

SOUTH KOREA

SRI LANKA

TAIWAN

VIETNAM

WEST AFRICA, SENEGAL


Officer of
Academic
Professional
Organization
Board of Directors

OFFICER OF ACADEMIC PROFESSIONAL ORGANIZATION, BOARD OF DIRECTORS

a. Vice President of the International Federation of Nonlinear Analysts, IFNA, 2000 to Present

b. Chair, Technical Committee on BAYES and Empirical Bayes Methods and Applications, IMACS

c. Vice President and Board of Directors, World Federation Publishers, INC., Publishers of advanced monographs in mathematical sciences, USA - Russia

d. Co-Chair, International Association for Mathematics and Computers in Simulation

e. Board of Directors: International Federation of Nonlinear Analysts (IFNA)

f. Chair, Technical Committee on Modeling and Simulation of Environmental Systems, IMACS

g. Co-Chair on Technical Committee on Stochastic Systems, IMACS

h. President, American Foundation for Greek Language and Culture, AFGLC 1992- 2007

i. President, International Foundation of Greek Language and Culture, IFGLC 2003-2007

j. Board of Directors: AFGLC-ICHS The Richard Stockton College of N.J.

k. Board of Directors: AFGLC-ICHS University of South Florida.

l. University of South Florida, Black Life Institute, Advisory Board

m. USF Urban Scholars Outreach Program, Executive Director

n. President, Florida Hellenic Chamber of Commerce

o. Board of Directors, Broadway Theater Projects, Tampa Bay, BTP

p. Board of Directors, St. John's Day School

q. President of IFNA, International Federation of Nonlinear Analysts


International
Educational
Partnership

EDUCATIONAL AGREEMENT: PEOPLE'S REPUBLIC OF CHINA

Established an official agreement for collaboration between **The Beijing Institute of Technology** and the **University of South Florida**, the purpose of this educational partnership is as follows:

- Recognizing the importance of mutual collaboration and the contributions to society made by institutions of higher education, both parties share a desire to develop mutually strengthening and enriching international educational and research experiences for both faculty and students.

- The primary purpose of this agreement is to provide a general basis within which specific cooperative activities of an academic and cultural nature may be implemented involving faculty and or students from USF and The Beijing Institute of Technology.

- Faculty and researchers in various disciplines in various disciplines will be encouraged to develop contacts and propose collaborative projects. Each project proposal will be considered on its merits and on availability of funds. The two institutions will seek internal and external sources for support of projects and exchanges, which may be developed as a result of this agreement.

- As specific projects in education or research, each will require a written Memorandum of Understanding (or a contract) which will set forth the terms and conditions of the project(s). These Memoranda or Contracts will be approved and signed by appropriate administrators at each institution.



Professional Academic Activities

PROFESSIONAL ACADEMIC ACTIVITIES

1. Served on the Advisory Board, Society of Industrial and Applied Mathematics, SIAM, for books and monographs, Philadelphia, PA.

2. Served on the U.S. Advisory Committee on World Organization of General Systems and Cybernetics, Lancashire, England.

3. Served on the Society of Industrial and Applied Mathematics, SIAM, Visiting Consultants Panel, Philadelphia, PA.

4. Advisor to Director-General, World Organization of General Systems and Cybernetics, England.

5. Served on the National Committee on Scientific Studies of Oil Spills: Strategies and Techniques, Washington, D.C.

6. Served as Faculty Representative of the American Statistical Association, Washington, D.C.

7. Served on the Editorial Board of Regional Lecturers for Industrial and Applied Mathematics, SIAM, Philadelphia, PA.

8. Adjunct Professor for Operations Research, Polytechnic Institute of New York, PINY, for two years.

9. Served as U.S. Lecturer for the Society of Industrial and Applied Mathematics.

10. Institute of Management Science, 1985 Annual Meeting, Academic Invitee for roundtable discussions on "Academic Training and Industrial Needs."

11. Vice-President, International Federation of Nonlinear Analysts, IFNA.

12. Co-Chair Technical Committee on Stochastic Systems, International Association for Mathematics and Computers in Simulation.

13. IMACS Technical Committee on Modeling and Simulation of Environmental Systems.

14. External Examiner for Ph.D. theses-Indian Institute of Technology, Kanpur, India, and Marathwada University, Aurangabad, India.

15. Scientific Affiliate of the Center for Behavioral Medicine and Community Psychology, USF.

16. Developed a one-hour videotape, requested and directed by the Tampa Educational Cable Consortium, with representatives of the Russian Academy of Science. Topics discussed in Mathematical and Engineering Sciences:

- Current research activities in the "New Russia."
- Aims and objectives of graduate education in "New Russia" in comparison with the USA.
- Strategies to enhance the interaction between USA (Florida) and Russian scientists.
- The video was shown several time on Jones Intercable, Paragon, Cablevision and Telesat educational channels, 1993.

17. Elected to the International Organizing Committee, Colloquium on Differential Equations and Numerical Analysis-Bulgarian Academy of Science / UNESCO / Japan Mathematical Society / IFNA, Plovdiv, Bulgaria.

18. Elected to the International Organizing Committee-Nonlinear Problems in Aviation and Aerospace, 1994-96.

19. Elected to the International Advisory Committee for the Ukraine Academy of Science, Mathematics Division, for international conferences in mathematics, Kiev, Ukraine.

20. Selected in 1997 by the International Statistical Institute to be on the team "The Citizen Ambassador Program of People to People-Statistics" to visit the P.R. of China.

21. Vice President of the International Federation of Nonlinear Analysts, IFNA, 1992-2008.

22. President of the International Federation of Nonlinear Analysts, IFNA, 2008-.



Research Grants and Contracts

RESEARCH GRANTS

Title of Project	Granting Agency
Bayesian Approach to Reliability: Methods and Evaluations with Computer Simulation	DAF
Pattern Recognition: Non-Gaussian Classical Procedure	NASA
Data Management and Statistical Analysis for Principal Investigators of the MAFLA System	BLM
Data Management and Statistical Analysis for Principal Investigators of the MAFLA System	BLM
Development and Application of Bayesian Reliability Methods	DAF
Evaluation of Mental Health Care Delivery Systems	PHS
Pattern Recognition: Non-Gaussian Classification Procedures	NASA
Non-Parametric Approach to Bayesian Estimation in Life Testing and Robustness Studies	AFOSR
The Theory and Application of Reliability with Emphasis on Bayesian and Nonparametric Methods	AFOSR
Mental Health Service Delivery Research and Evaluation	DHEW/PHS
Problems in Reliability and Estimation	AFOSR
Problems in Reliability and Estimation	AFOSR
On the Design of Multispectral Sensors for Discrimination of Sources	NASA

The Development of Some Stochastic Models of Mathematical Sciences	AFOSR
Evaluation & Improvement of a Stochastic Algorithm for Discrimination of Sources	AFOS
The Development of Some Stochastic Models of Mathematical Sciences	AFOS
Stochastic Analysis of Multiple-Passband Spectral Classification System Affected by Observation Errors	NASA
Development of Statistical Models for Engineering and Life Sciences Problems	AFOSR
A Stochastic Model to Evaluate and Analyze Breast Cancer	USF
Geochemical Studies on Black Sea Drill Cores- Theoretical Profiles*.	NSF
Biochemical Markers of Perinatal Human Surfactant* (Medical College)	NIH
Nonlinear Stochastic Systems	URI
Random Integral Equations and Life Sciences Statistical Modeling (Johnson & Johnson)	VPI & SU
Environmental Protection Agency (EPA), 2002, Research Grant for Statistical Analysis and Advising	EPA
Kellogg Foundation / Academic Affairs, 2000, USF Foundation – USOP	Kellogg Foundation
Time Warner Cable, 2002, USF Foundation – USOP	Time Warner
Florida Department of Children and Families, 2002, USF Foundation – USOP	FDC

Federal Government, Gear up Program, 2002-2006, Multimillion Dollars Project, Approved, USOP is a participating Partner.	FG
RISE – National Science Foundation, CO-PI.	NSF
STEM – National Science Foundation, CO-PI.	NSF


Professional
Assistance to
Academic
Institutions

PROFESSIONAL ASSISTANCE TO ACADEMIC INSTITUTIONS

Development of Graduate Programs
Faculty Evaluating and Doctoral Theses

- University of Georgia; Athens, Georgia
- Rice University; Houston, Texas
- University of Texas at Arlington; Arlington, Texas
- University of Jordan, S.A
- University of Patras; Patras, Greece
- University of North Carolina; Charlotte, North Carolina
- University of South Carolina; Columbia, South Carolina
- University of Southern California; Los Angeles, California
- Kuwait University
- Indian Institute of Technology; Kanpur, India
- Yarmouk University; Irbid, Jordan
- Marathwada University; Aurangabad, India
- Polytechnic Institute of New York, PINY; Brooklyn, New York
- Florida Institute of Technology; Melbourne, Florida
- Waterloo University; Waterloo, Canada
- Samara Polytechnic University; Samara, Russia
- Salve Regina University; Newport, Rhode Island
- Keene State University; Keene, New Hampshire
- University of Louisville; Louisville, Kentucky

- Northern Illinois University; DeKalb, Illinois
- University of Cypress
- University of South Florida, College of Medicine
- University of South Florida, Engineering Faculty
- The Richard Stockton College of N.J.
- University of Central Florida
- University of North Florida
- Dominion University


Scientific
and
Professional
Societies

SCIENTIFIC AND PROFESSIONAL SOCIETIES

Past and Present:

- American Mathematical Society, AMS
- American Statistical Association, ASA
- Institute of Mathematical Statistics, IMS
- American Association for the Advancement of Science, AAAS
- Florida Academy of Science, FAS
- Operations Research Society of America, ORSA
- Society of Industrial and Applied Mathematics, SIAM
- New York Academy of Science, NYAS
- Sigma Xi Society
- Sigma Pi Sigma Society
- International Federation of Nonlinear Analysts, IFNA
- International Statistical Institute
- American Association for the Advancement of Science
- National Academy of Inventors, NAI, USF


Referee,
Reviewer for
Academic
Journals

REFEREE, REVIEWER FOR ACADEMIC JOURNALS

- American Statistical Association
- American Mathematical Society
- Institute of Mathematical Statistics
- International Statistical Institute
- IEEE Transactions on Reliability
- Technometrics
- Biometrics
- Naval Logistics
- Communications in Statistics
- ARA Journal of Scientific Research
- SIAM Journal of Applied Mathematics
- Advances in Applied Probability
- SIAM Journal of Control
- Operations Research Society
- The Review
- Journal of Applied Probability
- Journal of Nonparametric Statistics
- Journal of Engineering Reliability and System Safety
- Journal of Dynamical Systems
- Journal of International Association for Mathematics & Computers in Simulation
- International Journal on Reliability and Safety
- Journal of Nonlinear Analysis, Theory and Methods
- Journal of Stochastic Analysis and Applications
- National Academy of Science

REVIEWER FOR

- Mathematical Reviews
- Zentrollblat fur Mathematik
- Executive Sciences Institute



University Academic Committees

UNIVERSITY ACADEMIC COMMITTEES

University of Rhode Island (1963-69)

- All University Committee on Statistics
- Graduate Committee, Departmental
- Educational Policy Committee, Departmental
- Honors Committee, Departmental
- Scheduling Committee, Departmental
- Coordinator for Mathematics & Statistics offerings at the University of Rhode Island Extension Center in Providence, Rhode Island.

Virginia Polytechnic Institute and State University (1969-72)

- Graduate Committee, Chairman, Departmental
- Library Committee, Departmental
- Colloquium Committee, Departmental
- Scheduling Committee, Departmental
- Faculty Evaluation Committee (College of Business)

University of South Florida (1972 to present)

University

- President's Advisory Committee on Computers
- University Committee on Computer Sciences
- University Graduate Council
- University Research Council
- All University Committee on Statistics
- Presidential Search Committee 1993
- USF Search Committee for Director of the Institute of Black Life
- USF President's Council

- Patel Center for Global Solutions Search Committee fro Executive Director
- Provost in Committee/Review Department of Education Leadership and Policy Studies
- Patel Center for Global Solutions Building Committee
- USF Graduate School – Circle of Excellence

College of Arts & Sciences

- College Graduate Council, Chairman
- College Tenure Committee
- College Promotion Committee
- Chairman's Search Committee for Oceanography

Department

- Graduate Committee, Chairman
- Advisory Committee, Chairman
- Stochastic Systems, Director
- New Appointments Committee
- Colloquium Committee
- Library Committee
- Textbooks Committee
- Chairman's Search Committee
- Statistics Committee

State of Florida

- House of Representations, Committee on "Improvement of the Florida Retirement System"


USA
Government
Advisor, Consultant,
Lecturer

UNITED STATES GOVERNMENT

Advisor, Consultant and Lecturer

U.S. ARMY/Communication Command Center

United States Army Fort Monmouth, N.J. (more than 12 years of service): Structuring of statistical databases, stationary and non-stationary forecasting modeling, climatologically prediction processes, man-machine inter-phase models, hierarchical communication structures, contractual evaluations, statistical evaluation of communication systems, reliability modeling, short courses, among others.

U.S. ENVIROMENTAL PROTECTION AGENCY

United States Environmental Protection Agency-Statistical; evaluation of scientific projects, design of experiments for and specifications of pollutants including acid rain, pollution prediction models and specifications, identifying future objectives of the Agency, among others.

U.S. AIR FORCE/Washington, D.C.

United States Air Force Office of Scientific Research (10 years of service) Statistical analysis and estimation, forecasting models, ordinary and Bayesian reliability and analysis, environmental models, evaluation of scientific contracts, scientific structuring of training programs, workshops, conferences, lectures, strategic planning, communication systems, among others.

U.S. AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Airlie House, Airlie, Virginia: Decision Information of Tactical Command and Control, September 1976: Conference/Workshop for the four U.S. Military Services; objective-problem Identification, Enhancement of Interaction between Research and Managers, Consideration of Operations Effectiveness Measure and Stimulation of Relevant Research.

U.S. Navy/ New London, Conn. Newport, R.I. Washington, D. C.

Weapon systems maintenance schemes; reliability analysis process, forecasting of availability of weapon systems, statistical analysis of structural data, antisubmarine warfare strategies, spectral analysis of detection schemes, seminars, among others.

NASA/ Washington, D. C. Langley, VA.

National Aeronautics and Space Administration (7 years of service) Pattern recognition schemes, sensitivity analysis of classification models, compression and decompression procedures for satellite data, nonparametric analysis of agricultural and environmental data, prediction models for satellite design schemes, system reliability, communication algorithms, educational programs, among others.

Bureau of Land Management/Washington, D. C.

Structuring of database of environmental information for the United States Gulf Coast (including Florida, Alabama, Mississippi, Louisiana and parts of Texas), statistical modeling schemes for environmental information, and prediction analysis of species behavior, design of experiments, prediction models, statistical algorithms for data reduction, among others.

American Cancer Society/ Atlanta, Georgia

Advisor and Consultant on National Related Cancer Research Projects


Private
Industry
Advisor,
Consultant,
Lecturer

PRIVATE INDUSTRY

Advisor, Consultant and Lecturer

- IBM Corporation; Westchester, New York
- American Telephone & Telegraph Company, AT&T; Morristown, New Jersey
- Bell Laboratories; Holmdel, New Jersey
- Ebon Research Systems; Washington, D.C.
- Excell Corporation; Patterson, New Jersey
- Farmland Industries, Inc.; Bartow, Florida
- Hillsborough County; Tampa, Florida
- M&M Mars Corporation; Hackettstown, New Jersey
- Nabscan USA, Inc.; New York City
- Rex Meighen & Company; Tampa, Florida
- R.J. Reynolds Corporation; Greensboro, North Carolina
- Johnson & Johnson; Tampa, Florida
- Jacobs & Jacobs, P.A. / Legal; New York
- Carlton Fields / Legal; Tampa, Florida
- Linvatek Corporation, Largo, Florida

Urban Scholars Outreach Program

USOP

1990 - 2021

This accomplishment represents a well-deserved recognition of your hard work and dedication to the citizens of Hillsborough County. I celebrate this achievement along with you, and wish you ever-brighter success in your vitally important work.

- U.S. Senator Bill Nelson, Florida

URBAN SCHOLARS OUTREACH PROGRAM

In 1998 co-founded the **Urban Scholars Outreach Program, USOP**, at **USF** to educationally assist African American and Hispanic students with **mathematics**, **reading** and **writing**, the essential skills for entering college and becoming good and productive citizens.

1. The **Urban Scholars Outreach Program** is a free educational supplement available to all. A unique aspect of the program is that parents are encouraged to participate along with their children providing commitment and continuing reinforcement. Volunteer teachers from the **USF** faculty, graduate and advanced undergraduate students, as well as retired school teachers, provide small group and individual assistance. The **USF - USOP** focuses on helping students prepare for the public-school assessment programs, including the High School Competency Test, as well as Benchmark tests and **FCAT** exams. The program includes special instruction in test preparation for high school students, including the SAT and ACT tests used for college entrance.

2. In September 2002, we opened the **USOP** computer center consisting of more than 40 computers donated by the business community. It is used to teach the students the basic skills in using the computer. We have computerized our technical assistance in preparing the students for PSAT/SAT, ACT and FCAT.

3. In summary, The **Urban Scholars Outreach Program** is a nonprofit organization with a three-fold mission:

   a. **Provide educational assistance to students in preparing for the PSAT/SAT and ACT college entrance examinations;**

   b. **Supplement the Tampa Bay area county school systems' "benchmark" requirements for each grade level, K-12; special tutorial assistance for FCAT testing; and**

   c. **Stimulate untapped passion in our urban students toward learning, and setting and achieving educational goals.**

The USOP, since its inception has been assisting anywhere from 200 to 400, mostly underprivileged students, per academic year.

During the academic year 2002-2003, USOP was nominated and we were the recipient of

<u>Debartolo / Bright House Networks</u>, ***The Spirit of Humanity Award***.



The American Foundation for Greek Language and Culture

Established 1992

Professor Chris P. Tsokos

Served as the Founding President 1992 to 2007

THE AMERICAN FOUNDATION FOR GREEK LANGUAGE AND CULTURE

The American Foundation for Greek Language and Culture, AFGLC, was established in 1992 in Tampa, Florida, as a non-profit public educational organization. Its overall mission is dedicated to the preservation and enhancement of the Greek language and cultures, worldwide though our institutions of higher learning.

The aims and objectives are:

- To assist in establishing and enhancing the offering of studies in the Greek language and fields of Greek literature, history, philosophy, art, society and culture at academic institutions.
- To assist in the establishment of curricula in the Greek language and related fields, especially literature, leading to a baccalaureate degree;
- To encourage and assist academic institutions in establishing graduate programs in the aforementioned areas of Greek studies;
- To work with other organizations in the United States whose goals and objectives are to promote and enhance the teaching of the Greek language, Greek literature and Greek culture at academic institutions;
- To assist academic institutions in the collection of research material and various data pertaining to Greek culture and studies in general.
- To assist in the creation of archives of Greek American families and organizations who have played important roles in the history of America;
- To assist in establishing and organizing, visiting lecture programs involving prominent scholars in Greek culture and civilization, and exchange programs of prominent scholars in Greek studies between academic institutions in Greece and the United States;
- To organize seminars, symposia and conferences for the promotion of the aims and objectives of AFGLC

Briefly, the overall educational mission of AFGLC is the establishment of **Interdisciplinary Centers for Hellenic Studies**, ICHS, at Colleges and Universities in the United States and internationally. Each ICHS is to consist of five professorships, endowed in perpetuity in **Greek History**, **Philosophy**, **Culture**, **Language** and **Religion**.

Two ICHS Centers have been established at the University of South Florida and The Richard Stockton College of New Jersey with a total of ten endowed professors.

The aims, objectives and accomplishments, were published in a sequence of three newspaper articles. **The Hellenic Voice**, Boston, Mass.

Title: Promoting Hellenism Through Interdisciplinary Centers for Hellenic Studies by Dr. Chris P. Tsokos

Part I. Vol. 11, #7, June 20, 2001
Part II. Vol. 11, #8, June 27, 2001
Part III. Vol. 11, #9, July 4, 2001

Presented by
Maj. Gen Christos Militsis
Greek SNR to USCENTCOM
to Dr. Chris P. Tsokos
President of AFGLC
Tampa, April 2005



Interdisciplinary Center for Hellenic Studies at USF

-IHS-

INTERDISCIPLINARY CENTER FOR HELLENIC STUDIES AT USF

The Interdisciplinary Center for Hellenic Studies (ICHS) is the means by which AFGLC carries out its mission to present the Hellenic language and culture to the American university student. Two such Centers have been established in the United States. The first ICHS is located at the University of South Florida, which has given its ICHS the coveted designation "**Center of Excellence**"; and the second at The Richard Stockton College of New Jersey, which is among the best state liberal arts colleges in the US.

Each ICHS consists of five named professorships, endowed in perpetuity, in the following areas: **Greek Language and Culture, Greek History**, **Greek Philosophy**, **Culture**, **Language** and **Religion**. The pentagon below illustrates the structure of such ICHS.



The entire Center is so structured contractually that neither it nor the individual professorships can ever be terminated.

In 1999 officially established was the USF *Interdisciplinary Center for Hellenic Studies*, ICHS. The ICHS consists of five-named endowed professor in *Greek History, Greek Philosophy, Greek Culture, Greek Language, Greek Literature,* and *Byzantium History and Orthodox Religion*.

Once the Center is established, it is under the control of the academic institution but is presided over by a Board of Directors that include AFGLC participation. Its academic agenda is carried out by a Director, appointed from among the endowed faculty. The ICHS must be operated in accordance with the contract, and neither the Director nor the school administration can alter its mission.

The particular services the ICHS Center provides to its faculty and students include the following:

- To organize and host public lectures, symposia, and conferences;
- To award faculty enhancement grants.
- To award student scholarships.
- To facilitate study-abroad opportunities;
- To help to build at its host institution a collection of publications, reference works and archival materials that pertain to the objectives of the Center;
- To assist in the publishing of scholarly works through small grants;
- To assist in establishing or organizing visiting positions or exchange programs for prominent scholars in various aspects of Hellenic Studies;
- To apply for funding from granting agencies external to the university itself;
- To help to establish interdisciplinary degree programs at the host institution in various aspects of Hellenic Studies, at the undergraduate and graduate levels;
- To advise students wishing to pursue careers in Hellenic Studies;
- To utilize the Internet and other distances learning technologies as they relate to its mission.



Florida Hellenic-American Chamber of Commerce

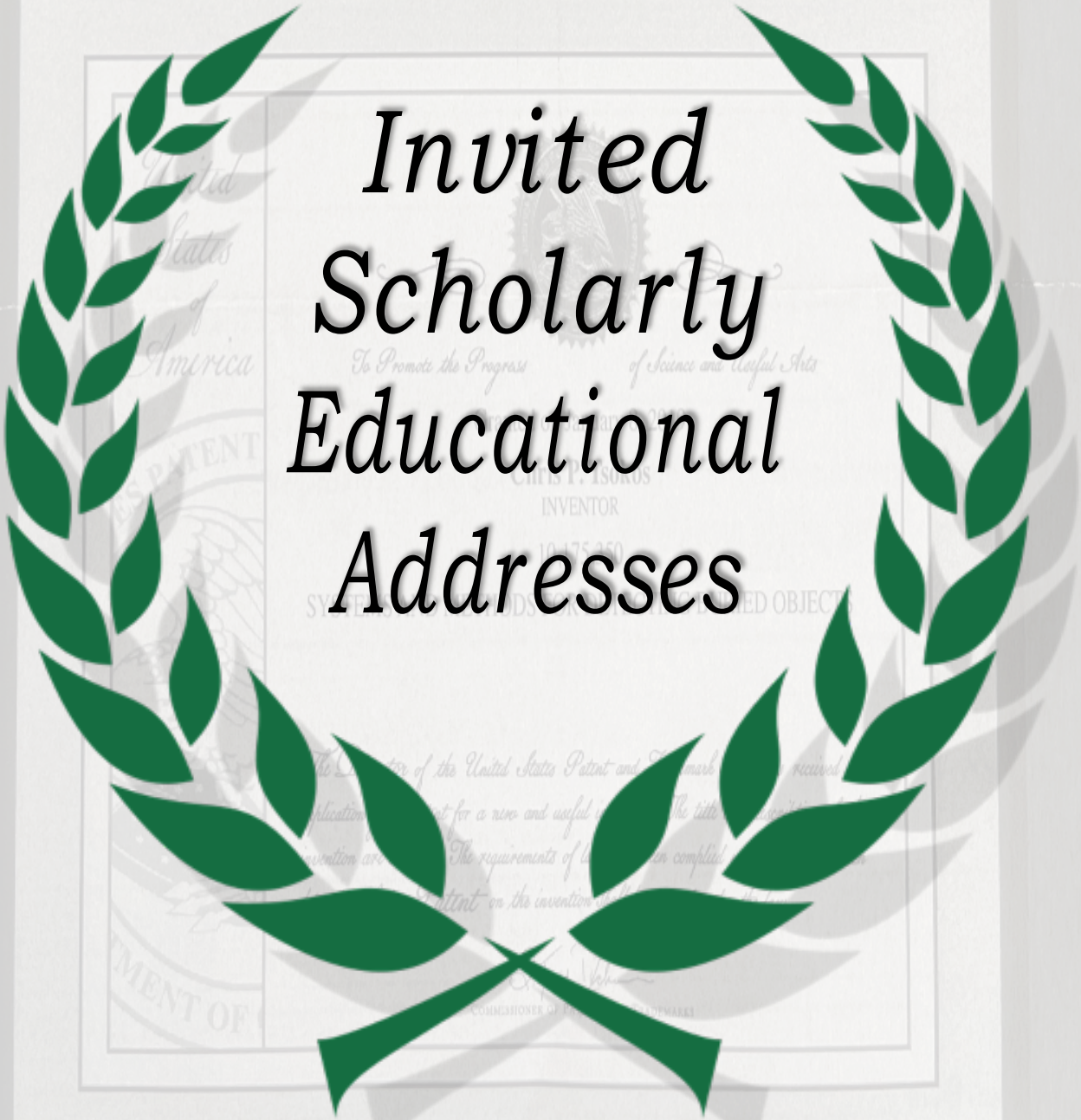


"Advancing the commercial, financial, industrial and civic interests of the Greek-American community"

In 1994, Dr. Chris P. Tsokos established the Florida Hellenic-American Chamber of Commerce (**FHACC**) to harmoniously promote the economic and business infrastructure of the Greek-American community by assisting in the growth of trade and investments between the two countries. It is developed as a volunteer nonprofit organization of professional individuals and business people working together to fulfill the aims and objectives of the Chamber. These aims and objectives are

- To enhance the economic and business communication structure between Greece and America;
- To encourage and promote the export-import structure of the State of Florida and Greece within competitive marketing conditions;
- To assist the Greek-Americans in business in the State of Florida to prosper and grow;
- To unify the Greek-American businesses and professional organizations for more effective lobbying strategies in both countries.

In brief, the **Florida Hellenic-American Chamber of Commerce** was established to create the ideal link for trading, professional partnership and investment opportunities from both sides of the Atlantic.



Invited Scholarly Educational Addresses

INVITED SCHOLARLY EDUCATIONAL ADDRESSES

- Eleventh Educational Forum, AFGLC, USF-CIS 1048, "**Hellenic Paideia: Challenges to Higher Education**", "**AFGLC's Educational Plan and its Support**", March 2-4, 2006

- Athens, Greece – Zapeion Megaron "**Hellenic Paideia and Classical Values – Models for Political and Economical Activities: Moderator, Key Concepts with Historical Perspective**", June 2-4, 2005

- Tenth Educational Forum, AFGLC, USF – CPR 103, "**Hellenic Paidia: Educating for Democracy and World Peace**", "**AFGLC-Strategic Plan**", March 3-5, 2005

- Ninth Educational Forum, AFGLC, USF – CIS 1048, "**Corporate Responsibility for the Support of Education: Lessons from the Classical Athenian Democracy**", "**Education, Business and Leadership: Modern Paradigms from the Greek Experience**", Moderator, February 26-28, 2004

- The Richard Stockton College of New Jersey, "**Interdisciplinary Center for Hellenic Studies: Academic Benefits**", June 20, 2003

- Eight Educational Forum, AFGLC, USF – CIS 1048, "**AFGLC Mission: Enlightening the Young with the Olympic Torch of Hellenism**", "**The AFGLC Mission and Commitment: We are Moving**", February 27-March 1, 2003

- National Research Foundation of Greece, "**The Role of the Hellenic Paedia and Hellenic Culture in the Era of Globalization**", September 14-15, 2002, Athens, Greece

- University of Delaware, "**Global Academic Advantages of Interdisciplinary Centers for Hellenic Studies**", May 13, 2002, Newark, DE

- Seventh Educational Forum, AFGLC, USF – CIS 1048, "**Lighting the Hellenic Torch Through Interdisciplinary Centers**", "**The AFGLC Mission and Strategy**", February 28 – March 2, 2002

- Sixth Educational Forum, AFGLC, USF – CPR 103, "**The Development of Interdisciplinary Centers for Hellenic Studies: Linking Mission and Objectives with Realistic Strategies**", "**The AFGLC Focus and Mission**", March 1-3, 2001

- University of Missouri- St. Louis, "**A Dynamic Plan for Hellenism in the 21st Century**", May 2001, St. Louis, Missouri

- Hellenic American Union, June 26, 2001, "**Scientific Contributions and Hellenism in American Universities**", Athens, Greece

- Hellenic American Union, "**Mathematics-Music and Hellenism in American Universities**", June 6, 2000, Athens, Greece

- University of Pittsburgh/Foundation for Hellenic Studies, "**The Educational Mission and Strategies of AFGLC**", Pittsburgh, Pennsylvania, November 11, 2000.

- University of Rhode Island, "**Interdisciplinary Centers at American Universities for Hellenic Studies**", Kingston, Rhode Island, November 16, 2000.

- Zappeion Megaro, "**The Importance of the Establishment of the AFGLC Center in Greece: Mission-Goals and Objectives**", Athens, Greece, October 11, 2000.

- USF, Fifth Annual Educational Forum, "**AFGLC and Greek Institution: An Exciting Personal Odyssey**", CIS 1048, March 10-11, 2000.

- Greek-American Union, "**Hellenism in the West-A State of the Art Approach for Revival**", Athens, Greece, July 22, 1999.

- Greek-American Union, "**Hellenism in the West – A State of the Art Approach for Revival**", Athens, Greece, July 22, 1999

- Fifth Educational Forum, AFGLC, USF – CIS 1048, "**The Opening of an Interdisciplinary Center for Hellenic Studies Unifying the Building Blocks**", "**The AFGLC Vision and Strategy**", February 28 – March 2, 1999

- Fourth Educational Forum, AFGLC, USF – CIS 1048, "**The Opening of an Interdisciplinary Center for Hellenic Studies Unifying the Building Blocks**", "**The AFGLC Vision and Commitments: Future Plans and Developments**", March 10-11, 1999

- Third Educational Forum, AFGLC, USF – CIS 1048, "**Support of Hellenism Through Department and Programs**" March 1-2, 1998

- Second Educational Forum, AFGLC, USF – CPR 103, "**Nurturing Hellemism in An American University**", March 5-6, 1997

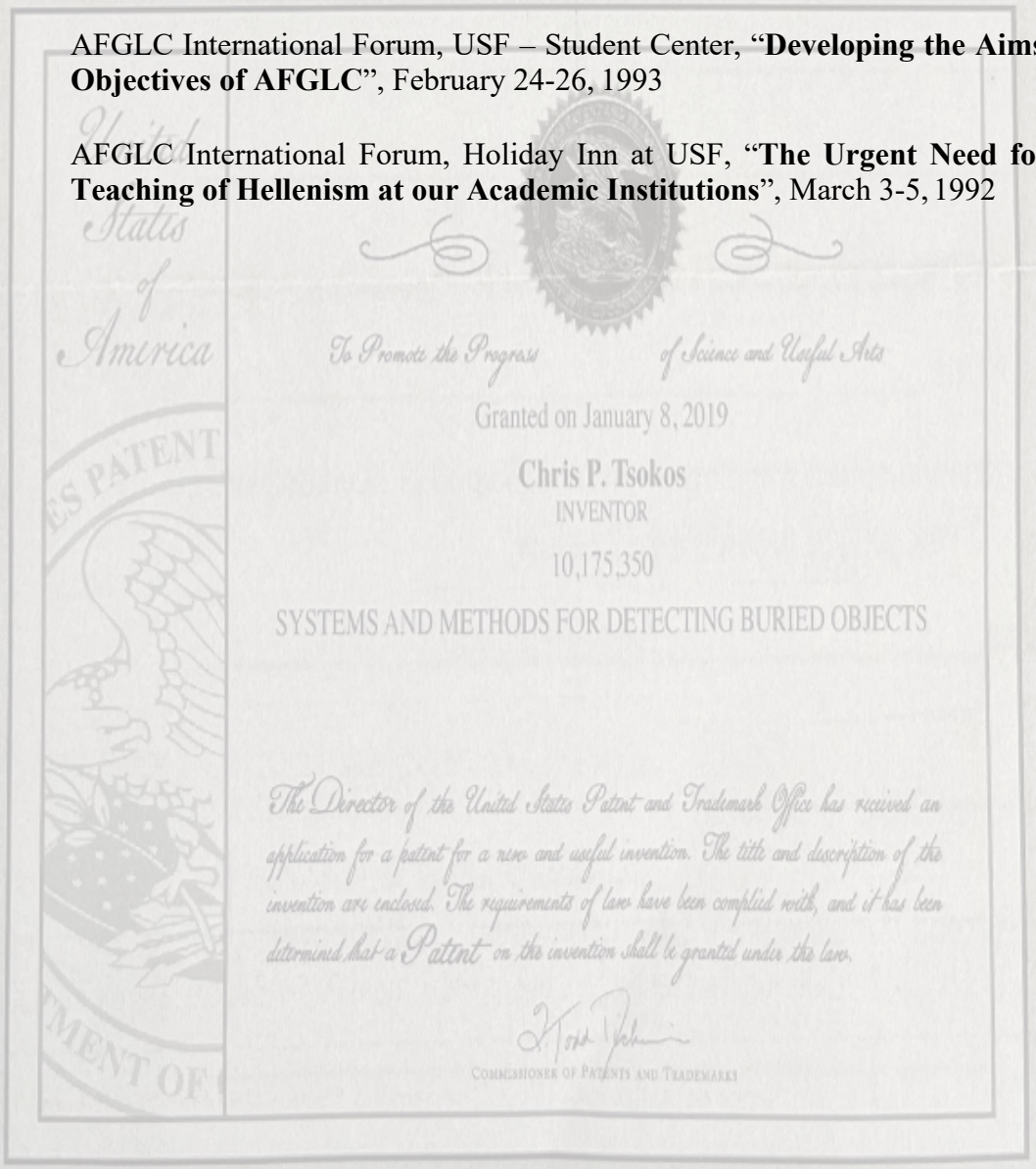
- First Educational Forum, AFGLC, USF – CIS 1048, "**The Educational Mission of AFGLC Towards Hellenism**", February 28-March 2, 1996

- AFGLC International Forum, USF – CPR 103, "**The Interdisciplinary Advantages of Greek Study Programs at our Colleges and University**", March 3-5, 1995

- AFGLC International Forum, USF – CIS 1048, "**AFGLC and the Interplay with the Academic Environment**", February 28 - March 2, 1994

- AFGLC International Forum, USF – Student Center, "**Developing the Aims and Objectives of AFGLC**", February 24-26, 1993

- AFGLC International Forum, Holiday Inn at USF, "**The Urgent Need for the Teaching of Hellenism at our Academic Institutions**", March 3-5, 1992





Tampa Bay Community Services

COMMUNITY SERVICES

- Tampa Museum of Arts, Committee for Magna Grecia Exhibit, South Italy and Sicily, 2003
- Board of Directors, St. John's Greek Orthodox School, 2009 - 2012.
- Board of Directors, Broadway Theater Projects (BTP), for Tampa Bay, Florida
- Black Life Institute- Advisory Board, NSF GK-12 Project
- Tampa Bay High School Teachers and Students – Mathematics Field Day, "Challenges in Probability and Statistics, Nov 1998
- USF – Urban Scholars Outreach Program, teaching mathematics, reading and writing to underprivileged African American and Hispanic students, k-12, in Tampa Bay Area

COMMUNITY OUTREACH PROGRAM: SPEAKERS

In 1999, established the **AFGLC/Interdisciplinary Center for Hellenic Studies, ICHS**, at the University of South Florida, to promote and assist in the study and teaching of Hellenism through the many fields that define Greek civilization and culture.

We are also concerned about reaching out to the American public generally, to make everyone more aware, not only of the glories of the Greek past, but also of the contribution their friends and neighbors of Greek ancestry make to life in America every day.

To assist in this goal, we have compiled a list of speakers in the Tampa Bay area who are available to talk to **schools**, **public and private organizations**, **churches**, etc. on a very broad array of topics. A brochure of the speakers and suggested titles is available.


IFNA
WORLD



WHAT IS "IFNA WORLD"?

IFNA Mission

The **International Federation of Nonlinear Analysts** (**IFNA**) is a not-for-profit educational and research oriented organization (society), that was founded more than 25 years ago, with the ambitious goal of assisting in changing our world one topic at a time. **IFNA** is globally an interdisciplinary professional organization which seeks to promote the understanding of related complex nonlinear problems and approaches to solutions from all disciplines using the art of **mathematical sciences**.

This focus on common themes has led to **IFNA's** motto of understanding through

"GLOBAL DIVERSITY, COOPERATION AND COLLABORATION".

IFNA researchers from all fields of study from across the GLOBE seek solutions to real world problems facing our society in this age of information. There has been a growing need for this professional organization to assist in increased understanding of our Global Society. With more than 125 countries including developed, developing and undeveloped countries, IFNA serves as a global network where instant communication allows for assistance to be made **Anywhere, Anytime, Anyplace**.

Our globalization and technological evolution is becoming more complex, highly interactive and interdependent. Furthermore, the 21st century advances in technology have increasingly generated and used large, complex, and diverse datasets (BIG DATA). Such advancements in technology have engendered new problems that are different in nature and more global in scope. For example, now there are many serious problems of worldwide consequences, in **GLOBAL WARMING**, **GLOBAL ECONOMY**, **GLOBAL HEALTH**, **GLOBAL ENERGY**, among others. The better understanding of such complex problems requires the joint efforts of researchers from all disciplines including chemical, biological, ecological, economic, engineering, environmental, medical, physical, and sociological sciences, among others. With **Mathematical and Statistical Sciences** as a conceptual language and tool, we can address all global problems in all aspects of theory, methods and applications.

We at "IFNA WORLD" focus on "The Circles of Sustainability" as so clearly defined by the United Nations.

What is Mathematical Sciences?

" The reason mathematics serves as such a forceful tool is that the universe is a mathematical structure... Mathematics needs to be admitted into science as one of natures incredible parts. ... It may be the most fundamental of cell". Physicist Max Tegmark.

Solve real world problems using mathematical sciences.

IFNA researchers from all fields of study from across the GLOBE seek solutions to real world problems facing our society in this age of information. There has been a growing need for this professional organization to assist in increased understanding of our Global Society. IFNA serves to act as a global network for sustainability development for quality of life in a peaceful society.

Mathematical Sciences are those fields of study in which the language of Math is used to describe the relationship and solve real world problems.



Mathematical sciences is an academic field that can include but is not limited to other subfields such as mathematics, statistics, mathematical physics, bioinformatics, portions of allied integrative chemistry, etc. Mathematical sciences are part of nerly all aspects of everday life, the discipline has underpinned such beneficial modern capabilities as Internet search, medical imaging, computer animation, numerical weather predictions, and all types of digital communications. The creation and working with "BIG DATA" for scientific planning and the essential implantation of mathematical sciences has grown to become a need in education, research and real world situations.

Our understanding of the world around us is data driven and the solution of complex/non-linear problems that our global society is facing and will be facing will be solved through Mathematical Sciences. Mathematical Sciences are the key to understanding and modeling the various phenomena embedded in the enormous contents of the "**BIG DATA**". Mathematical sciences are essential to solve real world problems.

Part of our global mission is to concentrate in addressing some of the important problems in the following areas: Economy/Finance, Energy, Environment, and Health.

IFNA World Goals and Objectives:

- Create opportunities for the exchange of ideas among the scholars and bridge the cultural boundaries.
- Help researchers from all fields of study across the globe to resolve current real world problems.
- Encourage undergraduate and graduate exchange programs.
- Encourage and assist educational activities in developed and undeveloped countries.
- Assist in the creation of database that is essential for research and decision making
- Provide financial aid assistance international activities in education and research.
- Use 21st century technology to develop partnership among researchers, scientists, and agencies around the globe that work on complex problems.
- Build problem solving groups among the scholars around the globe.
- Promote global centers for their innovative and cooperative solutions to the global real problems.
- Host international conferences and other academic activities to enhance the education in the developing countries.
- Establish communication between global centers using social media, web-based content, and traditional media.
- Enhance the quality of life through research and development.

Some Areas of Concentrated Research:

- **ECONOMY/FINANCE**
  - ***Analysis and modeling of behavioral, ecological, and energy economics.***
  - ***Development of economic models for industrial competitive analysis among countries.***
  - ***Game theory approach to economic problems with competitive interactions.***
  - ***Economic understanding of regional effects: city, state, country.***
  - ***Statistical analysis and modeling in identifying and ranking the risk factors of the various financial business segments.***
  - ***Economic and financial models that are essential in formulating policies for controlling global warming problems.***
  - ***Utilizing extreme value theory, non-parametric methodology and Bayesian analysis to address economic and financial systems.***
  - ***The development of quantitative and qualitative global research on digital economy.***
- **ENERGY**
  - ***Analysis and modeling to better understand the effectiveness of renewable energy sources: wind, solar, and hydropower.***
  - ***Evaluation modeling of the energy systems; availability, efficiency, and reliability.***
  - ***Perform feasibility studies to identify the appropriate energy system regionally around the globe.***
  - ***Understanding economical and environmental impacts of various energy sources.***
  - ***Development and analysis of energy risk management models.***
  - ***Analysis and modeling of LNG & PG production and storage.***
  - ***Renewable energy sources in smart grids.***
  - ***Communication technologies into grids and networks.***
  - ***Cyber/physical reliability of energy systems.***

- **ENVIRONMENT**
  - ***Analysis and modeling including Bayesian, non-parametric and extreme value theory to better understand climate change.***
  - ***Understanding "Global Warming." Carbon-dioxide in the atmosphere interacting with atmospheric temperature.***
  - ***Identifying the risk factors that cause Global Warming among different countries in the world.***
  - ***Developing more accurate prediction methods for natural disasters such as hurricanes, tornados, and earthquakes.***
  - ***Analysis and modeling to better understand the impact of industry on the environment and help create environmental policies.***
  - ***Environmental impact of different energy sources.***
  - ***Understanding environmental health issues – water and air quality, different energy sources, among others.***
  - ***Nanotechnology and environmental nuclear issues.***
  - ***Waste and toxic effects on the environment.***
  - ***Economic impact on legal environmental policies on a regional basis, city, state, country.***
- **HEALTH**
  - ***Analysis and modeling including Bayesian, non-parametric and extreme value theory to better understand the different types of diseases such as cancer and heart disease.***
  - ***Effective evaluation and ranking of different treatments for health problems.***
  - ***Identifying regional (city/state/country) effects on all health problems.***
  - ***Develop cost effective management of health care systems.***
  - ***Modeling and analysis of occupational and environmental health.***
  - ***Studying the effects of smoking, passive smoking, nutrition, obesity and physical activities on individual health.***
- **GLOBAL CYBER SECURITY**

  Special and invited sessions will focus on the critical and globally significant importance of ***Cyber Security****.* ***Global Cyber Security*** *is the analytical*

methodology that has been and is continuing to change to protect networks, computers, programs, and data from any attack, damage or unauthorized access. Large volumes of confidential information that is being processed on a daily basis by almost all organizations, including government, military, financial institutions, etc. and it must be protected from cyber attack. This is a global problem and we will bring together academicians, government officials, private industry from around the globe to address this important issue. The U.S. government considers the subject matter of high priority and allocates more than 13 billion dollars each year for cyber security.

Some of the areas tha we are planning to address under cyber security in the IFNA World Congress 2016 are:

- ***Artificial Intelligence Modeling of Cyber Security with Neural Networks/ Expert Systems***
- ***Information Assurance Processes/Security***
- ***Network Security Processes/Cloud Computing***
- ***Software Assurance***
- ***Enterprise Risk Management***
- ***Operating Systems in Minimizing Cyber Attacks***
- ***Development in Firewall Protection Systems for Cyber Security***
- ***Public Service Protection Systems; "Stop, Think, Click"***
- ***Custom Security Systems for Confidential Data Protected from Cyber Attack***
- ***Development of Models to Protect from ID Theft and Fraud.***
- ***Social Networking and Online Shopping Protection Systems from Cyber Attack.***
- ***Etc.***

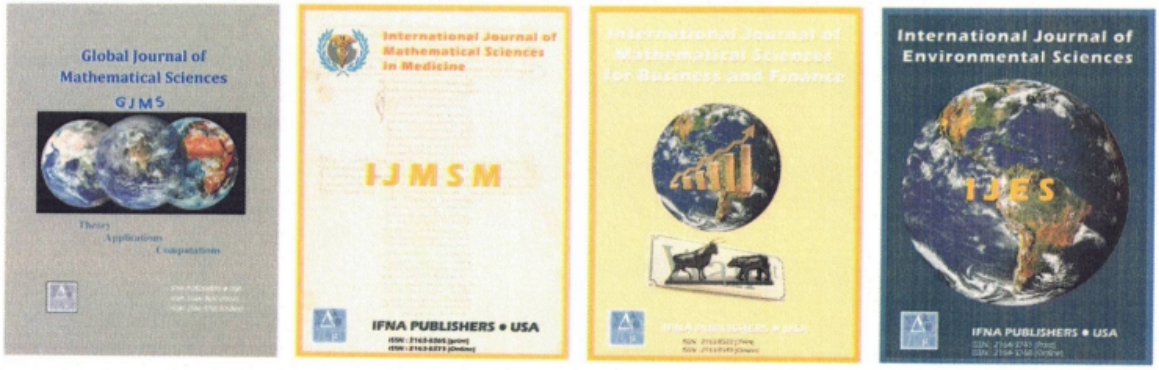
A round table will consist of international experts on cyber security and will discuss the subject matter with respect to yesterday, today and tomorrow: ***Where the great minds meet.***

"AMONG OTHERS" --- IFNA WORLD & Sustainability

IFNA Journals

To enhance the mission, goals and objectives of the IFNA world, we have established four academic professional journals to publish original peer reviewed research articles that are within the scope of the IFNA commitments.

These Journals are:



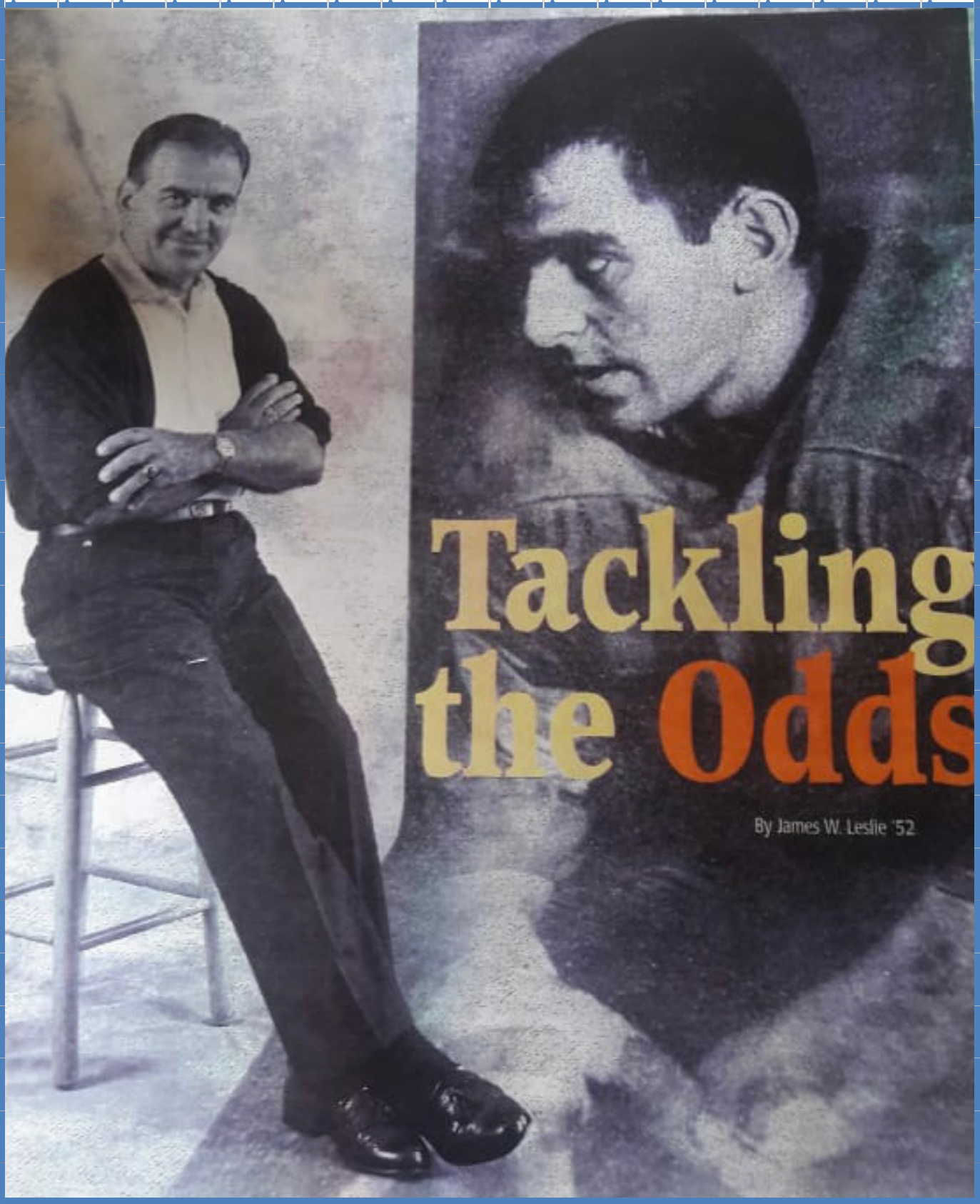
1. GLOBAL JOURNAL OF MATHEMATICAL SCIENCES (GJMS)
2. INTERNATIONAL JOURNAL OF MATHEMATICAL SCIENCES IN MEDICINE (IJMSM)
3. INTERNATIONAL JOURNAL OF MATHEMATICAL SCIENCES FOR BUSINESS AND FINANCE (IJMSBF)
4. INTERNATIONAL JOURNAL OF ENVIRONMENTAL SCIENCES (IJES)

IFNA Centers

IFNA world has officially established "IFNA CENTERS" around the globe to promote and enhance the goals, missions and objectives in their countries. The IFNA world promotes and is engaged in establishing regional conferences and workshops to bring academicians, scientists, and government leaders to discuss and debate the research findings and problems that their global region is experiencing to discuss the possible solution.

IFNA World holds a world congress every four years in different countries around the globe to work towards achieving our goals and objectives.

Prof. Chris P. Tsokos
Distinguished University Professor-USF
President of IFNA



“It was a wonderful journey”

…CPT…