

**OSCAR H. CRINER****EDUCATION**

Ph D., University of California, Berkeley, CA, Applied Mathematics, 1972  
 B.S., Howard University, Washington, DC, Mathematics/Physics, 1960

**TEACHING EXPERIENCE SUMMARY**

<b>Institution</b>	<b>Location</b>	<b>Period</b>	<b>Rank</b>	<b>Subject</b>
Texas Southern University	Houston, Texas	1976 to Present	Professor	Computer Science
San Francisco State University	San Francisco, CA	1973 to 1976	Lecturer	Black Studies
University of California	Berkeley, CA	1966 to 1971	Research Associate	Mathematics
California State University	Hayward, CA	1969 to 1970	Instructor	Mathematics
Grambling College	Grambling, LA	1960 to 1961	Instructor	Physics

**CONSULTING EXPERIENCE SUMMARY**

<b>Activity</b>	<b>Company</b>	<b>Location</b>	<b>Dates</b>
Augmented Cognition Research	Embassy Investments & Securities, Inc.	Tulsa, OK	Sum 2005
Environmental Data Analyses	Galveston Bay Estuary Program	Webster, TX	1999-2000
Software Engineering Consultant	ARAMARK/HISD	Houston, TX	1999-2000
Commodity Trading Course	Natural Order Educators	Phoenix, AZ	1999
Information Systems Consultant	deJongh/Williams Joint Venture	US Virgin Islands	1989-1998
Information Systems Consultant	A. J. Lee's, GmbH	Heidelberg, Germany	1994-1996
Information Systems Consultant	National Easter Seal Society	Chicago, IL	1994-1995
Software Engineering Consultant	Motorola, Inc.	Arlington Height, IL	1992
Information Systems Consultant	Office of the Lt. Governor	US Virgin Islands	1992-1993
Software Engineering Consultant	AT&T Bell Laboratories	Naperville, IL	1987-1992
Software Engineering Consultant	AT&T Bell Laboratories	Denver, CO	1982-1984

**PROFESSIONAL MEMBERSHIPS**

IEEE, IEEE Computer Society  
 Sigma XI - The Scientific Research Society  
 Society for Chaos in Psychology and Life Sciences

**RECENT ACCOMPLISHMENTS**

- Organized and directed the CRCN STEM Enchantment Program for middle and high school students, Summers 2011, 2012, 2013, 2014, 2015
- Presentation: Understanding Student Aspirations and Achievement, Summer Program Evaluation and Research Series Conference, Houston Independent School District, August 12, 2011
- Invited Speaker: National Jury Summit, Sponsored by the American Board of Trial Advocates and National Center for State Courts, April 1-3, 2009, San Francisco, California
- Invited Paper: "Systems Identification in Finance and Economics", Third International Conference on Computational Finance and its Applications, University of Cadiz, Cadiz, Spain, May 27 – 30, 2008
- Served as Faculty opponent for the Ph.D. dissertation defense of Peter Forsberg, *Optimisation of Long Term Industrial Planning*, Department of Applied Mechanics, Chalmers University of Technology, Göteborg, Sweden, December 2006
- Invited Paper: "Integrated equities applications after Sarbanes-Oxley", Second International Conference on Computational Finance and its Applications, Imperial College, London, UK, June 27 – 30, 2006

- Member of the National Science Foundation Information Technology Research (ITR) Committee of Visitors (COV), Washington, DC, 2005
- Invited Lecture: The Origin and Current Impact of the Sarbanes-Oxley Act, American International University, Houston, TX, 2005
- Invited Speaker: National Summit on the Present State and Future of the Seventh Amendment Right to Trial by Jury, Sponsored by the American Board of Trial Advocates and the Federation of Defense and Corporate Counsel, March 31 - April 2, 2005, Las Vegas Nevada
- Invited Panelist: National Symposium on the American Jury System, Washington and Lee University School of Law, Sponsored by the American Bar Association, October 15, 2004
- Co-Chair, American Bar Association Commission on the American Jury, with Honorary Chair Justice Sandra Day O'Connor, United States Supreme Court, and Co-Chair, Judge Judith Kaye, New York State Court of Appeals, and Co-Chair, Manny Sanchez, Esq., Sanchez and Daniels, Chicago, 2004-2005
- Invited Lectures on Jury Service
  - Three Lectures for Law week Activities, Cumberland School of Law, Samford University, March 2004
  - Mehaffey Inn of Court, Beaumont, TX, 2003
  - River Oaks Women's Club, Houston, TX, 2003
  - Mid-Year Meeting, American Judicature Society, Santa Fe, NM, March 2003
- Distinguished Speaker: The Joint Speaker Series, The National Association of Geoscience Teachers and the National Association of Black Geologists and Geophysicists (NABGG), 2000-2001
- NASA Certificate of Recognition Presented to Texas Southern University, Recipient of the 1999 Partnership Award for Innovative and Unique Education and Research Projects, National Historically Black Colleges and Universities Week Conference, Washington, D.C.
- QUALITY DAY AWARD FOR LEADERSHIP OF THE PRODUCT QUALITY PROGRAM, 5ESS Switch Software Development Laboratory, AT&T Bell Laboratories, Naperville, IL 1989

### **ACADEMIC EXPERIENCE – DETAIL**

Interim Associate Dean, October 2009 to Present  
College of Science, Engineering, and Technology

Acting Chair, Department of Physics, September 2016 to 2018

Interim Chair, Department of Aviation Science and Technology, January 2016 to 2018

Professor, 2002 to Present

Associate Professor, 1976 to 2002

Department of Computer Science, 2005 to Present

Department of Computer Science and Physics, 1986 to 2005

Faculty Development Leave 1988 to 1990 extended 1990 to 1993

Founding Dean, College of Science and Technology, September 1984 to June 1986

First Head, Department of Computer Science, September 1976 to August 1986

My current service is as the Interim Associate Dean for Administration and Development of the College of Science and Technology.

I served as first head of a new Department of Computer Science. Built a student body from 50 in 1976 to over 700 in 1984, when I moved to the Deanship of the new College of Science and Technology. I established Industry/University relationship with AT&T Bell Laboratories in 1981. This relationship has resulted in several million dollars in support of all kinds from AT&T Bell Laboratories and its successors as well as from the AT&T Foundation. I revised the curriculum in 1982 so that the department became the first college department in the nation to fully embrace the UNIX operating system and the C programming language throughout its educational program. This was long before UNIX and C became the developmental environment of choice. My recognition and understanding of

the trends of the industry made TSU's Department of Computer Science a national leader during that period.

During the initial phases of the development of high technology, I worked to position TSU into a coherent posture with respect to the direction of science and technology. At that time, TSU had developed strong positions with the major technology companies of that time. In order to show the commitment of the University to contemporary science and technology reorganization and repositioning of programs was necessary. I led a faculty committee that prepared the proposal for the establishment of the college that was established in 1984. The college consolidated programs, eliminated unproductive programs and strengthened the faculty. I served as the founding Dean of this new College of Science and Technology. The College was comprised of over 2000 students and 100 faculty and staff. As Dean, I acted as the "owner" for the construction of two college buildings valued at over 12 million dollars.

### **SUBJECTS TAUGHT**

#### **COMPUTER SCIENCE:**

Windows OS, Visual Basic for Applications with Word, Excel, Access  
Advanced applications using C#, VB.Net, Visual Basic for Applications and SQL Server  
Logical & Mathematical Foundations for Digital Computing  
Programming with C and UNIX; Advanced Structured Programming in C  
Computer Architecture and Assembler Languages; Operating Systems;  
Systems Analysis and Design for Business Information Systems I & II  
Data Structures, File Systems, Data Base Management Systems  
Software Design and Software Testing; Microprocessors and Microcomputers in Real Time  
Software Development

**PHYSICS:** Introduction to Physical Science and General Physics I and II

**MATHEMATICS:** College Algebra, Calculus, Foundations of Mathematics for Teachers

#### **In the Graduate School**

**MATHEMATICS :** Partial Differential Equations & Fourier Series and Boundary Value Problems;  
Operational Mathematics and Laplace Transforms;

**IN THE ENVIRONMENTAL TOXICOLOGY DOCTORAL PROGRAM:** Environmental Modeling  
and Data Analysis; Environmental Policy and Management: Modeling Laboratory

### **THESES SUPERVISED**

Gloria Okome, Ph.D., Environmental Toxicology, 2013

Ralph W. Ross, Ph.D., Environmental Toxicology, 2012

Dissertation Title: A Study of Animal Waste in the Environment with Implications for Human Health

Shandalyn Washington, M.S., Environmental Toxicology, 2011

Thesis Title: A Model of Animal Waste as a Function for the Demand of Meat

Carla L. Wyatt, Ph.D. Environmental Toxicology 2007

Dissertation Title: An Analysis of Harris County National Pollutant Discharge Elimination System Outfall Screening Data

Chang Yun, M.S., Computer Science, University of Houston, 2005

Thesis Title: A Prototype Educational Interface-Based On Handwritten and Verbal Interaction  
(I was this student's thesis advisor through collaboration with the Department of Computer Science at the University of Houston.)

Michael Johnican, Ph.D., Computational Environmental Toxicology, 2002

Dissertation Title: Architecture of a Computational Problem Solving Environment for Integrated Environmental Assessments of Surface Water Contaminates  
Steven Eisenberg, M.S., Mathematics, 1988

### **CURRENT GRADUATE ADVISEES**

Jamaal Roby, M.S. Program in Computer Science, Research Area: Time series analysis  
Anthony Powell, M.S. Program in Computer Science Research Area: Educational Technology

### **GRADUATE COMMITTEES**

Chang Yun, Ph.D., Committee in Computer Science, University of Houston, 2009  
V.C. Desai, M. A., Psychology, 1987                      Renard Thomas, Ph.D., Environmental Toxicology, 2001  
Glenda Green Johnson, Ed.D., 2000                      Mbomete Asuquo Udobong, Ed.D., 2001  
Evita D. Hollis, M.S., Mathematics, 2005

### **UNIVERSITY SERVICE**

Served as chair of the College of Science and Technology Rank and Tenure Committee  
Served as chair of the University Faculty-Senate Hearing Committee  
Served on search committee for the Dean of the College of Science and Technology  
Served on departmental faculty search committees

### **BUSINESS EXPERIENCE-DETAIL**

Oscar H. Criner, Ph.D. Consultant

I have served as a consultant specializing in applications of the information technology and information systems. I have provided business, government, and industry with quality consulting services in software products, quality improvement, business process re-engineering, integrated information systems, and other aspects of contemporary information technology. Some of my consulting assignments are described below:

General Manager of Easter Seal Systems for the National Easter Seal Society, Chicago, Illinois As General Manager of a national medical software developer and marketer, I had the prime responsibility for the operations of the business unit. It was the policy of the Easter Seal Society to extricate itself from the business and it was my responsibility to close the business down gracefully to achieve that objective.

Software Engineering Consultant, Cellular Infrastructure Group, Motorola, Arlington Heights, Illinois  
The Cellular Infrastructure Group manufactures cellular telephone switches. As the software engineering consultant for quality in the Cellular Infrastructure Group, it was my function to analyze the software development processes and to make recommendations to improve the quality of the product. Since switch construction is primarily a software function, the effectiveness of the software process has a direct effect on profitability.

Software engineering consultant for the #5ESS Switch Applications Software Development Laboratory, AT&T Bell Laboratories, Naperville, Illinois

As the software engineering consultant for product quality, it was my function to analyze the software development processes and to make recommendations to improve the quality of the product. Since switch construction is primarily a software function, the effectiveness of the software development process has a direct effect on profitability. I began with an education and training program for the U.S. 5ESS Switching Systems application software laboratory in the concepts, structure and discipline of process management. This laboratory was comprised of about 1000 persons, 700 of whom were responsible for the design and development of applications software for telecommunications features such as Centrex, ISDN, Intelligent Network, and other local telephone services. I had to gain the confidence of the management team; all of whom are Ph.D. or Masters level scientists or engineers. I provided the leadership for the entire organization in developing their understanding that their productivity and product quality was fundamentally dependent upon understanding, managing, and changing their business processes. This work started the laboratory on a path to the complete realignment of software development practices and to a disciplined process management structure.

The success of the work described above led to one of the most challenging assignments of my career. I was asked to take on the creation and implementation of organizational processes to integrate two separate AT&T companies and the customer support systems that linked them with their external customers. The companies were AT&T Bell Laboratories, AT&T Network Systems, and the external customers were primarily the Bell Operating Companies. The two AT&T companies historically had difficulty working through successful partnerships in support of customer field problems. Clearly, this was a "hot potato," but since I was a consultant who had gained the confidence of the staff and had no vested interest, I could be objective and impartial. I provided the first disciplined introduction of organizational process development to improve business management of this huge segment of the business and market for AT&T's flagship product. It was an assignment that required extraordinary skills in negotiation, team building, and problem solving. The processes that I devised have continued to evolve using the fundamental structure that my team and I set in place and have been used as a template for success for other parts of the organization.

Systems integration, information engineering and software development consultant for deJongh/Williams Program Management Consultants, St. Thomas, U.S.V.I.

This assignment was to design, develop, and operate a computer information system to track construction cost and progress for a \$300 million capital improvement program for institutional infrastructure in the United States Virgin Islands. I determined the requirements of the management company and organized the reporting system for a large number of construction projects operating simultaneously. I designed the data entry system, implemented an office automation network, and trained the users. The reports prepared projected the cash flow requirements for the projects as well as monitored schedule and progress.

Information engineering consultant for Office of the Tax Assessor, St. Thomas, U.S.V.I., deJongh Associates, Architects Engineers & Planners, St. Thomas, U.S.V.I.

I analyzed the operations of the Office of the Tax Assessor and Collector for the U.S. Virgin Islands and made recommendations for process improvement and modernization

Information systems consultant for Office of the Lt. Governor, Government of the United States Virgin Islands

I analyzed the operations of the Office of the Recorder of Deeds for the U.S. Virgin Islands and made recommendations for process improvement and modernization

Member of the Technical Staff, Large Computer Development Laboratory, AT&T Bell Laboratories, Naperville, Illinois 60532, June 1987 – September 1987, June 6, 1988 to December 31, 1988

I was a member of a team of computer scientists engaged in the architecture and design studies for a proposed new multiprocessor computer that would accelerate database processing, i.e., a database machine. This work utilized proprietary Bell Laboratory research results in advanced memory devices to design an ultra-high speed transaction processor.

Software Engineering Consultant, Customer Switching Laboratory, AT&T Bell Laboratories, Denver, Colorado, June 1984 to September 1984

I served as a consultant on software quality and productivity for the System 75 and System 85 digital PBX development projects. I made recommendations for software development process improvements that would result in the improvement of the quality of the software products produced.

Software Developer, Urban Health Management Systems, Oakland, CA, June 1973 to September 1976

I designed and implemented management information systems for health maintenance organizations. These were the first HMOs established in the first wave of healthcare reform. The systems that I developed responded to the great dependence of the companies upon accurate information about operations, utilization, and medical practice.

Assistant Director for Operations, Westside Community Mental Health Center, San Francisco, CA, January 1972 to June 1973

I was responsible for the operations of a large multi-agency mental health center. I designed and implemented the management information system for the complex of 40 mental health service provider agencies that comprised the Westside Center.

Mathematical Services Corporation, Oakland, California, January 1969 to January 1972

I was engaged in software development in various industries. The company constructed time shared application software for: (1) Survey research data collection and data base management systems used in large scale social experiments; (2) commodity and security data analysis and trading systems; (3) management information systems for small businesses; (4) special software for the graphics arts and publishing industry.

Applied Mathematician, Sandia Corporation, Livermore, California, January 1968 to June 1969

I conducted research in applied mechanics. Used the theory of plates and shells to state and solve various initial-boundary value problems on the first supercomputer, the Control Data CDC 6600.

Mathematician/Operations Research Analyst, U.S. Naval Radiological Defense Laboratory, January 1965 September 1966

My major assignment was research on the effects of nuclear weapons. I studied strategic bombing campaigns of World War II, particularly, the effects of the mass fires that resulted in the German cities as a result. I also devised “radical” countermeasures for fire suppression and the control of urban mass fires in a post nuclear weapon attack environment. This work required that I study the fluid dynamics, chemical kinetics and meteorological effects of very large fires. A secondary assignment was to analyze neutron cross-section spectroscopy data from cyclotron experiments.

Applied Mathematician, URS Corporation, Burlingame California  
December 1962 to January 1965

My primary assignment was to study of finite amplitude stress wave propagation in soil media and the construction of mathematical and computer models of the phenomena.

## SHORT COURSES, LECTURES, AND PRESENTATIONS

- Invited Lecture: The Origin and Current Impact of the Sarbanes-Oxley Act, American International University, Houston, TX, 2005
- Plenary Session with James Lester, Environmental Institute of Houston, and Robert Fiederlein, City of Houston, "Progress in the Implementation of the Galveston Bay Plan and the Latest Galveston Bay Status and Status and Trends including Key Environmental Indicators," Galveston Bay Symposium, Moody Gardens, Galveston, Texas January 31 – February 2, 2001.
- Research Presentation with Michael Johnican, "Architecture, Design, and Implementation of a Computational Problem Solving Environment for Integrated Environmental Assessments," Galveston Bay Symposium, Moody Gardens, Galveston, Texas January 31 – February 2, 2001.
- Poster Presentation with Michael Johnican, "Architecture and Design of a Computational Problem Solving Environment for Integrated Environmental Assessment of the Environmental Effects of Surface Water Contaminants in the Galveston Bay Estuary System," National Association of Black Geologists and Geophysicists, 19th Annual Technology Conference, October 2000.
- Lecture: "Dynamic Computational Models of the Environmental and Toxicological Effects of Agricultural Practices in the Major Farming Regions of the United States Utilizing *In Situ* and Remote Sense Data," Cooperative Agricultural Research Laboratory, Prairie View A & M University, October 1999.
- Sigma Xi Lecture, "Environmental Science, Autonomous Agents, and the Digital World View," Rice-Texas Medical Center Chapter of Sigma Xi, April 1999.
- Lecture: Priming the Pump – Creating a New Generation of Scientists, University of Michigan, 1999.
- Lecture: Priming the Pump – Creating a New Generation of Scientists, Lucent Technologies, August 1998.
- Lecture: "Intelligent Speech Enabled Telephony Research at TSU: Project TIGAR," Lucent Technologies, August 1998.
- Commencement Address for the Computer Applications Class XIX, Business Systems Training Center, Houston Area Urban League, 1997.
- Lecture: "The New Relationship Between Business and Information Technology," Cellular Infrastructure Group, Motorola, Inc., Arlington Heights, Illinois, May 1992.
- Lecture: "The Relationship Between Information Technology and Process Thinking in Business", AT&T Bell Laboratories, Naperville, Illinois, 1991.
- Workshop Participant: "National Science Foundation Workshop on the Role of High Performance Computing in Education," National Center for Supercomputing Applications, University of Illinois, Urbana, Illinois, October 28-30, 1990.
- Lecture: "Super-computers, Super-problems and Super-people," PANCOMP, U.S.A., Inc., Super-computer Workshop, Advanced Computational Methods Center, The University of Georgia, Athens, Georgia, June, 1988.

- Workshop: Curriculum Development in Computer Science, Spelman College, Atlanta, Georgia, June 1988.
- Lecture: "The Challenge of Advanced Study for Minorities" MassPep/NASA Graduate Research Development Program, Massachusetts Institute of Technology, Boston, Mass., May 1988.
- Lecture: "Cohesion Occurs - The AT&T/TSU Industry University Relationship," Invited talk given to members of the technical staff and management of AT&T Information Systems, Denver, Colorado, October 1986.
- Three Day Long Lecture - Workshops -- A short course in "Information Resources Management," U.S. Office of Personnel Management, Washington, D.C., March 1986.
- Five Day Long Lecture - Workshops -- A short course in "Introduction to Systems Analysis," Center for Information Management and Automation, U.S. Office of Personnel Management, Washington, D.C., October 1983.
- Lecture: "General Systems and Systems in General," Invited lecture given at the meeting of the Association for Systems Management, Houston, Texas, February 1980.
- Lecture: "Basic Systems Design - An Overview, The Basic Systems Review Course, Association for Systems Management, Houston, Texas, 1980.

#### **PUBLICATIONS, REPORTS, AND POSITIONS PAPERS**

- Oscar H. Criner, "Control systems identification in finance and economics," in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications III*, Southampton, UK, WIT Press, 2008.
- Kiran B. Chilakamarri and Oscar H. Criner, "On the Left Handed Helices in Proteins," *IJCHEMO* 2008, Volume 1, Issue 3/4
- C. H. Yun, Z. Deng, O. Johnson, and O. Criner, "EduNET: A Prototype Educational System Based on Handwritten and Verbal Interaction for Individuals with Multiple Sclerosis," in *Proceeding of 2007 Annual Conference of Rehabilitation Engineering & Assistive Technology Society of North America (RESNA)*, Phoenix, Arizona, June 2007.
- Oscar H. Criner and Erick D. Kindred, "Integrated equities applications after Sarbanes-Oxley," in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications II*, Southampton, UK, WIT Press, 2006
- Oscar H. Criner, "The forgotten part of the puzzle: Has the public attitude been shaped or driven by the debate ... or been ignored?," *Voir Dire Magazine*, Volume 12, Issue 2, Summer 2005
- Oscar H. Criner, "Optimal control strategies for portfolios of managed futures," in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications*, Southampton, UK, WIT Press, 2004.
- Oscar H. Criner and Michael D. Johnican, *Update 2000: Status and Trends of the Environmental Health of the Galveston Bay Estuary*, Galveston Bay Estuary Program, Webster, Texas, 2002. This work documents the construction of a database of water quality parameters for Galveston Bay.
- Oscar H. Criner and Erick Kindred, "Continuous Design and Development of Large Scale Software Systems," *Proceedings of the National Communications Forum*, v. XXXXI, 1987, pp. 1100 -1103.
- "Improving the Use of High Performance Computers in Minority Education," A Concept Paper prepared for the National Science Foundation Workshop on the Role of High Performance Computers in Education, National Center for Supercomputing Applications, University of Illinois, Urbana, Illinois, October 28-30, 1990.
- Recommendations for Improving the BWM Process, Co-author D. J. Rak, AT&T Bell Laboratories, Technical Memorandum, Naperville, Illinois, 1990.



- Oscar H. Criner and J. J. Halavin, Recommendations for Improving Software Quality and Productivity, AT&T Information Systems, Technical Memorandum, Denver, Colorado, 1984.
- Oscar H. Criner, A Appeal for a Reliable Economic Theory, The Barzza Papers, Department of Black Studies, San Francisco State University, 1973.
- Oscar H. Criner, Regularity Properties of the Solutions of the Two Dimensional Lagrangian Problem and of the Lagrangian Multiplier, Ph.D. Dissertation, University of California, Berkeley, 1971.
- Oscar H. Criner, The Transient Thermo-Mechanical Wave, Sandia Corporation Technical Memorandum, Livermore California, 1968.
- Oscar H. Criner, The Behavior of a Cylindrical Shell Under a Sweeping Load, Sandia Corporation Technical Memorandum, 1968.
- Oscar H. Criner, Weak Solutions of Nonlinear Partial Differential Equations and Problems of Applied Mechanics, Sandia Corporation Technical Memorandum, 1968.
- H. G. Mason, N. R. Wallace, and Oscar H. Criner, *A Study of the Dynamic Soil-Structure Interaction Characteristics of Real Soil Media*, Technical Documentary Report No. AFSWC-TDR-63, URS Corporation Report 621-13, Burlingame, California, 1963.
- Oscar H. Criner and, K. Kaplan, A Study of Explosion Generated Surface Water Waves, URS Report for Office of Naval Research, 1963.

#### **CONFERENCES, PROFESSIONAL GROWTH AND DEVELOPMENT**

- Summer Workshop for College Administrators, School of Education, Texas A&M University, Summer 2002.
- New Realities in Business Workshop, U.S. Departments of Commerce, Interior, Energy, Agriculture, and the Environmental Protection Agency, Southern University, Baton Rouge, LA, April 5-7, 2000
- NASA Workshop on Remote Sensing and Image Processing Education, University of Arizona, Tucson, Arizona, April 13-15 1999
- ARC/INFO Geographic Information Systems Course, April 1999
- Effective Personal Productivity Course, LMI International, Austin, Texas, July 1999
- RTX Operating Systems Course, Embedded Systems Products, Houston, Texas, January 1998
- South African Energy Conference, Cape Town, South Africa, July 1996

#### **COMMUNITY SERVICE**

- Member of the National Science Foundation Information Technology Research (ITR) Committee of Visitors (COV), Washington, DC, 2005
- Distinguished Speaker: The Joint Speaker Series, The National Association of Geoscience Teachers and the National Association of Black Geologists and Geophysicists (NABGG), 2000-2001
- Volunteer Director of Plays, University Players, Department of Fine Arts, Texas Southern University. Productions included: Electra by Euripides, 2000, The Dossier by Tadeusz Rozewicz, 2001, Tartuffe by Moliere, 2002, Antigone by Bertolt Brecht, 2003, The Twin Manaechmi by Plautus, 2004, Medea by Euripides, 2005, A Streetcar Named Desire by Tennessee Williams, 2006, Fortunes of the Moor by Carlton and Barbara Molette, 2008, Oedipus Rex by Sophocles, 2009, Electra by Euripides 2012, Death of a Salesman by Arthur Miller, 2013.
- Faculty Advisor:
  - TSU Computing Society
  - Society for the Preservation and Dissemination of the History of TSU
  - The TSU Newman Club
-

**RECENT MACHINE/ENVIRONMENT/LANGUAGE EXPERIENCE**

Solaris, Linux, Windows 2000, 2000 Server, 2003 Server, XP, XP-x64  
C#, VB, SQL Server, Visual Studio Dot Net, Web Services, XML, XBRL  
Sun Workstations, Sun Ultra 60  
IBM RISC System 6000, AIX Operating System  
INTEL 386/486, Pentium Based Microcomputers  
AT&T 3B2, 3B15, 3B4000 Computer Systems  
MS-DOS, MS-WINDOWS, Windows-NT, and UNIX Operating Systems  
UNIX Internals and UNIX Systems Administration  
Data Base Management Systems and the Standard Query Language (SQL)  
Computer Aided Software Engineering Tools

**ACTIVE RESEARCH AND DEVELOPMENT AREAS**Advanced Educator Simulator Project -- EduSim

The Computational Sciences Laboratory of Texas Southern University (TSU), with the collaboration of the Computer Science Department of the University of Houston (UH), is engineering an advanced educational tool extensible to virtually all areas of education. The technology is a multi-media interactive mobile collaborative tool design specifically for accelerated learning. While the technology may be applied over all age groups utilizing appropriate grade specific axiomatic methods, this proposal specifically addresses the needs of the adult learner. The objectives of this project are: (1) Design and implementation of an advanced, interactive, multimedia educator simulator (EduSim) for introductory courses of college mathematics, including the developmental courses. (2) Creation of server based educator simulator subject matter knowledge bases with interfaces utilizing text, speech and animated graphics. (3) Development of client based student media utilizing tablet PCs (or personal digital assistants (PDAs)) driven by speech, handwriting, text, and game controllers. (4) Deployment of an interdisciplinary, multi-university team of experts to integrate techniques from computer graphics, software engineering, artificial intelligence, sensor-based wireless networking, and human-computer interaction with educational and psychological methodologies. (5) Utilization of real-time physiological monitoring modalities, e.g., infrared and EEG sensors, to monitor changes in students' psychological state to provide interactive feedback.. Some of these research results were reported in Mr. Yun's thesis: Chang Yun, *A Prototype Educational Interface-Based on Handwritten and Verbal Interaction*, Department of Computer Science, University of Houston, 2005

Dynamic Computational Models of the Environment, Ecosystems, and the Effects of Pollution

A computational problem-solving environment (PSE) is a tool for environmental scientists that can be helpful in the analyses of complex systems for integrated environmental assessment. Computational limitations and single discipline approaches to environmental assessment forced decision makers to assume away many important cross media effects, multi-scale phenomena, and temporal processes. However, with contemporary computational technology, there is no longer any need to make such assumptions. The computational capability is in place and the monitoring capability is available, and, in some cases it is in place. There are many single discipline environmental models and other software tools currently available that deal with specific single aspects of the environment. Some of these include air and water quality models, air-water-land surface exchange models, hydrology and hydrodynamic models, sedimentation models, subsurface flow models, bioaccumulation and ecological models, and risk assessment models. An integrated, expandable approach is needed to facilitate the evolution toward more integrated models and comprehensive assessment tools made up of a large number of interoperable

components and distributed data stores. This research is reported in *Update 2000: Current Status and Historical Trends of the Environmental Health of the Galveston Bay Estuary*, (Webster, Texas: Galveston Bay Estuary Program, 2002)

#### Computational Models of Economics and Finance

This work focused on the application of optimal control principles to the management of strategies for trading portfolios of financial instruments. The essence of a control theoretic approach is to: 1) develop a measure of profitability of the trading portfolio, 2) computationally model the trading process operating on the price-time histories, 3) calculate estimates of the price-time histories using functions with well-known mathematical characteristics, 4) calculate, using the calculated estimates, derived functions of the price-time histories about which control variables are known and about which there is a priori knowledge, 5) simulate, using the derived functions, the trading policies and seek the values of the control variables that maximize the portfolio's trading performance over the life of the trading instruments. A realizable optimal control strategy is a direct extrapolation of the optimal simulation of trading into the future, day by day. This research was reported in a paper entitled "Oscar H. Criner, "Optimal control strategies for portfolios of managed futures," in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications*, Southampton, UK, WIT Press, 2004 and in "Systems Identification in Finance and Economics", in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications III*, Southampton, UK, WIT Press, 2008

#### Time Series Analyses

Modeling and data mining of environmental, economic and financial time series utilizing properties of known functions is an active area of our research. A major research area is the utilization of multiple time series in the analyses of complex interacting processes. The social systems, environmental systems, and the economic systems are inextricably intertwined and the level of complexity that requires new techniques to identify the underlying dynamic processes. Our work that visualized financial time series as the output of a dynamic process is being extended to research on the development of computational control strategies for other economic processes. Current work is directed toward nonlinear analyses of time series of integrated processes in computational models. See Oscar H. Criner and Erick D. Kindred, "Integrated equities applications after Sarbanes-Oxley," in M. Constantino and C. A. Brebbia, eds., *Computational Finance and its Applications II*, Southampton, UK, WIT Press, 2006.

#### Systems Analysis of the Judicial System

The constitutional right to a "trial by jury" is being threatened by a significant trend not to use this right by many persons. My work on jury process improvement has led me to studying the operations of the judicial system from a complex systems perspective. I am collecting data that characterizes the operations of court systems with the objective of creating computational models of the process. Judicial systems analysis is important to the urban mission of TSU since an inordinate number of African American youth are incarcerated by the criminal courts and many persons do not have the resources to obtain justice in the civil courts. Many of these incarcerations occurred without a jury trial and jury trials are also declining significantly in civil courts. My research, working with the American Board of Trial Advocates and the Center for Jury Studies of the National Center for State Courts, is to fully describe the court system in a systems study that identifies the issues that result in a decision not to go to trial by jury. Further, there are operational issues in legal and court systems automation that exacerbate to issue as well as problems of data mining and information extraction in complex cases. The complexity of modern society is leading to major operational problems in the system of justice. These problems were discussed in Oscar H. Criner, "The forgotten part of the puzzle: Has the public attitude

been shaped or driven by the debate ... or been ignored?”, *Voir Dire Magazine*, Volume 12, Issue 2, Summer 2005.

### Bio-Informatics Research

Collaborated with Dr. Kiran Chilakamarri (Deceased) of the Department of Mathematics on protein folding problems. Specifically, my research resulted in establishing a big database and a set of data base utilities for searching, sorting, and other calculations on more than 38,000 protein structures. This work is reported in Kiran B. Chilakamarri and Oscar H. Criner, “On the Left Handed Helices in Proteins,” *IJCHEMO* 2008, Volume 1, Issue 3/4.

### **OTHER SOFTWARE SYSTEMS DEVELOPED**

- GBEP-DAS -- Galveston Bay Estuary Program Water Quality Data Analyses System (1999-2002)
- SAMES – Student Average Meal Equivalents System, ARAMARK/Houston Independent School District (2000-2001)
- Medical management information systems for health maintenance organizations (1973-1984)
- THE ELECTRIC INTERVIEW – A software system for capturing data from complex surveys (1971)
- Mathematical model of the response of a cylindrical shell to a moving load (1969)
- Mathematical model of explosion generated water waves (1964)
- Mathematical model of the interaction of buried structures to the air blast induced ground shock from a nuclear weapon (1964)
- Computational model of forest fire behavior (1964)

**GRANTS AND CONTRACTS TO TEXAS SOUTHERN UNIVERSITY**

Project Description	Sponsoring Organization	Award Date	Dollar Amount
Member CREST Proposal Team, Center for Research on Complex Networks, Director of Education & Outreach	National Science Foundation	Sep-11	\$5,000,000
Development of an Interactive Real-Time Petrochemical Incident Location System	Department of Homeland Security and TSU DHS COE-P	Jul-09	\$500,000
Signal Characterization in Urban Environments	U.S. Air Force Research Laboratory, Wright-Patterson AFB, Ohio	Jan-07	\$90,000
Model-Based Simulation-Structural and Material Systems	NASA Headquarters	Oct-00	\$100,000
Development of Natural Language Understanding Grammars for Monitoring Conversations between Pilots and Air Traffic Controllers	NASA Ames Research Center, Moffett Field, Mountain View, CA	Oct-00	\$100,000
H-1B Visa Training Program	U.S. Department of Labor, Houston-Galveston Area Council	Jan-00	\$2,733,484
TNRCC/Galveston Bay Estuary Program, State of the Bay Report Update	Galveston Bay Estuary Program, Webster, Texas	Jul-00	\$32,000
TNRCC/Galveston Bay Estuary Program	Galveston Bay Estuary Program, Webster, Texas	Sep-99	\$100,000
Research in Intelligent Telephony Systems	Lucent Technologies, Denver, Colorado	1998	\$150,000
Center of Excellence in Applications of Remote Sensing to Regional and Global Integrated Environmental Assessments	NASA Headquarters, Washington, DC	1997	\$80,000
Feasibility Study of the Establishment of an Environmental Science Institute at Texas Southern University	NASA Johnson Space Center, Houston, Texas	1996	\$75,000
Telephone Switching System	AT&T Bell Laboratories	1994	\$1,000,000
The Loan Star Program	Texas Engineering Experiment Station Texas A&M University	1995	\$73,245
Software Engineering Tools -- Study of software development environments for the production of large-scale software systems.	AT&T Bell Laboratories	1986	\$225,000
Computer Equipment for Instruction and Research	AT&T Foundation Corporate Donations Program	1985	\$800,000
Telephone Switching System	AT&T Bell Laboratories	1984	\$750,000
Scientific Computing Experiments Using a Parallel Super-Minicomputer. National Science Foundation	National Science Foundation	Sep-86	\$67,000
		Total:	\$11,875,729