ANTONE L. KUSMANOFF, PH.D.

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CAREER EXPERIENCES

TEXAS A&M COMMERCE, Adjunct Graduate Staff (9/10 – Present)
- I currently instruct the online TAMUC Computer Architecture Course, CSCI 540 for the Computer Science and Information Systems Department.

L-3 COMMUNICATIONS, GREENVILLE, TX; Senior Principal Systems Engineer (3/02 – 6/10)
- I led a research project on optimizing time-to-solution of Computational Fluid Dynamic (CFD) problems using Graphical Processing Units (GPUs) and multiprocessor-node cluster architecture. The project was targeted to save time during the computational aspects of the aircraft modification design activity.
- From mid 2008 until the end of 2009, my day to day activities were involved with being a co-principal investigator for a Defense Advanced Research Projects Agency (DARPA) contract related to ISR missions. I was supporting the development and evaluation of Digital Signal Processing algorithms to be used in the Analog-To-Information project for a new, extremely wideband communications receiver (2 to 20 GHz). Several patent applications have resulted in this work effort and are in process at this time.
- From 2005 until mid 2008, I provided leadership and technical research as the principal investigator in the implementation of a reconfigurable computer system application that was based on Field Programmable Gate Arrays (FPGAs). This effort took advantage of advanced communication linkage for a reconfigurable system that was orchestrated into a unique parallel processor configuration for high-speed parallel processing solutions for partial differential equations. This activity resulted in the submittal of multiple patent applications on the developed hardware/software configurations that are in process at this time.
- From 2003 until 2005 I was assigned the role of Airborne Standoff Radar (ASTOR) Ground Station Design Authority. As the Design Authority, my responsibilities included tracking and certifying all contracted requirements through development of extensive test procedures (environmental and operational). The developed test procedures were executed and the ground system documentation was signed off and accepted by the UK government.

RAYTHEON, GREENVILLE, TX; Senior Principal Systems Engineer (4/97 – 3/02)
- As the Project Engineer for the Data Link Integrated Product Team on the UK ASTOR program, primary engineering support was provided in developing system specifications, engineering contract negotiation and follow-on testing and verification. This effort resulted in a reduced subsystem cost on two separate contracts with increased subsystem performance in both cases, with a savings estimated to be over 10 percent of the $90 million dollars of subcontracts.
- Provided proposal development support at contract negotiation that resulted in selection and a contract with the UK Ministry of Defense for the $1.4 billion dollar ASTOR system.
- As the acting Lead System Engineer all system documentation, performance reviews and program design reviews were completed successfully to enable the Surveillance of the Amazon (SIVAM) project team to procure mission equipment ahead of schedule at the lowest possible cost. This was for an aircraft surveillance system that supports monitoring of Amazon defoliation and Air Traffic Control of Brazilian air space over the Amazon.

FOXTAIL COMMUNICATIONS, Plano, TX; Owner and Chief Engineer (4/96 - 4/97)

- Clients saved hundreds of thousands of dollars through development support of competitive Request for Proposals (RFPs) for four major communications system upgrades. These included the Johnson Controls European Telecommunication Network, a North American Data Network, a Metropolitan SONET and a Corporate Voice Response System.
- Telecommunication throughput was improved at a lower cost by converting the communication network composed of dedicated circuits between 11 Johnson Controls factory locations and headquarters to a Frame Relay technology based network. T1 access costs were reduced by sharing access with voice channels connected to the many factories' PBXs to achieve significantly lower long distance costs.
- Key technologies applied for clients includes Frame Relay, ISDN, FDDI, SONET, Switched Ethernet, Collapsed Backbone LANs, and network protocols of RIP, OSPF and BGP V4.

BLYTHE*NELSON, Dallas, TX; Senior Engineer (7/95 - 4/96)

- A complete network and telecommunication system was planned for a national sign maker by integrating its business communications requirements into information technologies.
- White papers were generated on several topics including OSPF, SONET and FRAME Relay..

IT NETWORK, Dallas, TX; Vice President of Operations (5/93 - 7/95)

- Significantly improved products and assured a more uniform capacity across the national network of over 150 computer interactive voice response systems. These real time response systems were updated daily via ground and satellite communication system inputs designed and controlled by myself and my department's engineering staff.
- Linked all of the company production activities together with a master integrated, on-line, shared scheduling process to reduce production coordination errors.
- An on-line information reporting process was developed that increased management visibility of bartering exchange business activities with near real-time reporting.

SOUTHWEST RESEARCH INSTITUTE, San Antonio, TX; Senior Research Engineer (4/89 - 5/93)

- Managed and implemented research contracts for NASA Johnson Mission Control Center, USAF Cryptological Support Center at Kelly AFB, Lockheed, the USAF Integration Support Facility at Colorado Springs and the USAF Technology Validation Office in Louisiana.
- Follow-on activity of expanded and new research with increased funding was obtained on every contract that was won and managed during my service at SwRI.
- Significant NASA funds saved with review of Space Station Freedom communication bus.
- A design for a communication system to operate in and between a system of manned hyparbaric chambers and their emergency control centers was researched and completed for NASA.
- Led the team, designed and built the production model of a security monitoring platform for electronic surveillance of digital voice and data-communication transmissions that became a continuing and major product program for SwRI

OKLAHOMA STATE UNIVERSITY, Stillwater, OK; Instructor (7/97 - 4/89)

- Taught the electromagnetic field theory course for electrical engineering majors.
- During this period, a funded research project from the Office of Naval Research supported research activities that resulted in a new algorithmic approach to passive direction finding.
- Completed a doctoral dissertation dealing with the application of a parallel processor in the solution of the super-resolution bearing-estimation problem in the HF radio spectrum.

U. S. AIR FORCE, Continental United States and Pacific Theater: Lt. Colonel (6/67 - 6/87)

- Completed a 20-year Information Systems Officer career with extensive activity in communications, computer systems, computer networks, and major USAF command and control (C^2) systems.
- Served three years as a Computer Systems Analyst and the Programming Team Leader providing assembly language level support for a military C^3 system at the Strategic Air Command (SAC) Headquarters in Omaha, Nebraska.
- Communication system facility characterization techniques were pioneered for the Air Force for three years while acting as Branch Chief for sixty people in an engineering quality assurance program for microwave, tropospheric scatter, HF and other encrypted communication facilities.
- Computer-communication systems were integrated with command post displays to provided visualization of data that was received from satellites sensing technologies and radar based sensors for defense systems belonging to North American Defense (NORAD) headquarters.
- Completed extensive activity as the primary support for the communication evaluation testing for a 200 million dollar computer upgrade to the NORAD military command post. Engineering skills and troubleshooting abilities were directly responsible for saving millions for the USAF.
- The Air Force Institute of Technology (AFIT) engineering short course program was advanced as the student load increased from less than 40 students a month to over 80 with an annual number of well over 1,000 students.
- As Assistant to the Dean of Engineering at the AFIT, full time support was provided to the Dean in his responsibilities of operating the College of Engineering.
- Combined the Computer officer and Communication Officer courses at Keesler AFB, into an improved integrated Information Systems Staff Officer curriculum. A balance of technical management and engineering content was developed to prepare officers of rank of Captain to Lt. Colonel for roles as Information Systems Staff Officers in all branches of the service.
- Supervised and taught the Information Systems Officer course where course credit was granted in the University of Southern Mississippi's Telecommunication Management Maser's Degree.
- As Installations Officer of an Air Force Engineering and Installations Group, all Air Force computer, telecommunications, and avionics equipment that was removed, replaced or installed within Southeastern United States was accomplish by teams under my control and review.
- Met the demands of insuring a positive nurturing environment for the younger subordinate officers and the enlisted personnel that were in my command during a career of 20 years.

EDUCATION ACHIEVEMENTS

OKLAHOMA STATE UNIVERSITY
Ph.D. Electrical Engineering, May 1989
Dissertation Title: Real-Time Bearing Estimation In A Multi-Source Environment Using multi-processor, Multi-Algorithmic Acceleration

GEORGIA INSTITUTE OF TECHNOLOGY
MSEE, Communications Theory, May 1982

UNIVERSITY OF MISSOURI
MSEE, Computer Engineering, May 1973

UNIVERSITY OF MISSOURI
BSEE, December 1972
Honors Scholar, Cum Laude Graduate
Tau Beta Pi and Eta Kappa Nu Honorary Societies

SOUTHERN ILLINOIS UNIVERSITY
BA, Mathematics, June 1967
Varsity Wrestler

UNIVERSITY LEVEL TEACHING EXPERIENCES

TEXAS A&M COMMERCE: Commerce, TX, (2010 - present)
Position: Adjunct Staff
Program: Undergraduate Computer Operating Systems course
Program: Graduate Computer Architecture course

UNIVERSITY OF TEXAS AT SAN ANTONIO; San Antonio, TX, (1993)
Position: Adjunct Assistant Professor
Program: BSEE   Undergraduate Computer Design and Architecture course

OKLAHOMA STATE UNIVERSITY; Stillwater, OK, (1987-1989)
Position: Instructor
Program: BSEE   Undergraduate Electromagnetic Fields course

AIR FORCE INSTITUTE OF TECHNOLOGY; Wright-Patterson AFB, OH, (1982-1984)
Position1: Director
Program: School of Engineering Resident Short Course Program
Digital Communications, Computer-Communications, Digital Signal Processing & Fiber Optics
Position2: Instructor
Program: MSEE   Graduate courses in command, control and communications Technologies

UNIVERSITY OF SOUTHERN MISSISSIPPI, Off-Campus Program, Keesler AFB, MS (1984-1986)
Position: Instructor
Program: Telecommunications Management Degree program
Graduate communication engineering and telecommunications courses

GEORGIA INSTITUTE OF TECHNOLOGY; Atlanta, GA, (1981-1982)
Position: Adjunct Lecturer
Program: BSEE   Undergraduate Digital Hardware course

PUBLICATIONS AND PATENTS

PUBLISHED ARTICLES OF NOTE:
Cajetan M. Akujuobi1, Olusegun O. Odejide, Annamalai Annamalai1, Gerald L. Fudge, Phillip E. Pace3, Antone Kusmanoff, "Computationally Efficient Wideband Spectrum Monitoring of RF Signals Using Compressive Sensing Approach", MILCOM 2010, Oct 2010 (accepted).
P. E. Pace, A. Kusmanoff, G. L. Fudge, "Nyquist folding analog-to-information receiver: Autonomous information recovery using quadrature mirror filtering," Asilomar Conference on Signals, Systems, and Computers, Nov. 2009.
Kusmanoff, Antone; DeLaquil, Matthew and Prasanna, Deepak,(2006) "A Desktop Computing System Concept For Solutions To Large Systems Of PDEs", AIAA/IEEE 25th Digital Avionics Systems Conference, Portland OR: 15 - 20 Oct
Treichler, David; Carmichael, Ron; Kusmanoff, Antone; Ayers, Denise; Rusk, Linda "DETC2002/DFM-34197Ⓢ2002) Observation on Raytheon 6S: The Astor Early Engagement", 2002 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Montreal, Quebec, Canada

Treichler, David; Carmichael, Ronald; Kusmanoff, Antone; Lewis, John; Berthiez, Gwendolyn, (2002) "Design for six sigma: 15 lessons learned," Quality Progress v 35 n 1: January

Kusmanoff, Antone L., and Yarlaggadda, R. (1990) "A High Speed Super Resolution DOA Algorithm", IEEE International Conference On Acoustics, Speech, And Signal Processing.

FUNDED RESEARCH REPORTS:

Kusmanoff, Antone L., and Dick, F. (1993) "Telecommunications System Analysis Position (TASP)", Final Report, SwRI Project 05-5324.

Kusmanoff, Antone L., Der Tatevasion, and Novosad, S (1993). "Pathfinder Program to Conduct An Operational Test of Fee-For-Service for Base Level Telephone Services", Final Report, SwRI Project No. 05-4481, Technology Validation Delivery No 5157.

Kusmanoff, Antone L., and Dick, F. (1992) "Design Phase II for an Intercommunication System for the Crew and Thermal systems Division", Final Report, NASA Johnson Space Center, Southwest Research Institute Project No. 05-4630, NASA Grant No. NAS9-17900.

Kusmanoff, Antone L., and Moczygemba, M. (1990) "AB/GTH-3 TAP Digital Renovation For Improved R&M", System Design Review Report, Southwest Research Institute Project 05-3636, HQ Electronics Security Command Contract No. F04606-89-S-0039/SA07

Kusmanoff, Antone L., and Barton, T.J.(1990) "Research Into Alternative Network approach for Space Operations" Final Report, NASA Johnson Space Center, SwRI 05-2921, NAG 9-369

Kusmanoff, Antone L., and Others (1990) "Research In Software Allocation for Advanced Manned Mission Communication and Tracking Systems" Final Report, NASA Johnson Space Center, Southwest Research Institute Project No. 05-3668, NASA Johnson Space Center under subcontract to the University of Houston, Subcontract No. 079.

Kusmanoff, Antone L, Martin, Nancy,(1989) "The Role of a Host in a Cooperative Mainframe and Workstation Environment, Grant No. NAG 9-341 SwRI Project No. 05-2769

PATENTS

1. Tiled architecture for stationary-method iterative linear solvers; 8,166,090

2. Systems and methods for interference cancellation; 8,078,130

PATENTS APPLIED FOR

1. Matthew P DeLaquil, Deepak Prasanna, Antone L Kusmanoff: System for conjugate gradient linear iterative solvers. L3 Communications Integrated Systems Jan, 13 2011: US 20110010409)

2. Gerald L Fudge, Ross E Bland, Antone L Kusmanoff: Systems and methods for interference cancellation. L-3 Communications Integrated Systems Dec, 13 2011: US 8078130

3. Antone L Kusmanoff, Matthew P DeLaquil, Deepak Prasanna: Multi-phased computational reconfiguration. Jun, 23 2011: US 20110154012

4. Matthew P DeLaquil, Deepak Prasanna, Antone L Kusmanoff: System for convergence evaluation for stationary method iterative linear solvers. L3 Communications Integrated Systems Jan, 13 2011: US 20110010410

OTHER

I am a member of Armed Forces Communication-Electronics Association (AFCEA) and a Senior Member of IEEE. I have been a participant in speaking engagements for information system professional organizations and seminars in response to requests and have acted as a session chair during the AIAA/IEEE Digital Avionics System Conference.