

Curriculum Vitae

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Research Objectives:

Development of innovative computer architectures and associated operating system software for high-performance systems, with robust information security capabilities. Target systems include conventional and cloud computing systems. A major teaching objective is to expand students' thinking to consider the consequences of system design approaches, instead of just focusing on performance.

Qualifications:

Over 39 years experience designing and/or evaluating systems used in applications where the consequences of failure is very high. This experience includes work at Sandia and Los Alamos National Laboratories, as well as 22 years of similar experience while serving as a Reserve Navy Engineering Duty Officer in parallel with the civilian career. Teaching experience includes teaching in the Electrical Engineering Department as a Senior Instructor at the US Naval Academy, experience teaching operating system fundamentals to Navy personnel at sea as one of the founders of the Afloat University, and as an adjunct professor at the University of New Mexico in the early 1980's. Extensive leadership experience as both a senior manager at Sandia National Labs and as a Commander, US Navy (Retired).

Professional Experience:

University of New Mexico

Teaching Assistant - Instructor

Lecturer III

2011 – 2015

2015 - Present

Semester	Course No.	Course Title	Students
Spring 2016	CS 485	Intro Computer Networks	15
Spring 2016	ECE 331	Data Structures & Algorithms	26
Spring 2016	ECE 335	Integrated Software Systems	24
Spring 2016	ECE 440	Intro Computer Networks	25
Fall 2015	ECE 344L	Microprocessors	24
Fall 2015	ECE 344L	Microprocessors	14
Fall 2015	ECE 345	Intro to Control Systems	19
Fall 2015	ECE 345	Intro to Control Systems	7
Fall 2015	ECE 435	Software Engineering	48
Fall 2015	ME 380	Ana & Des Mch Con Sys	3
Fall 2015	ME 380	Ana & Des Mch Con Sys	38
Spring 2015	CS 485	Intro Computer Networks	5
Spring 2015	ECE 331	Data Structures & Algorithms	31
Spring 2015	ECE 335	Integrated Software Systems	18
Spring 2015	ECE 440	Intro Computer Networks	20
Fall 2014	ECE 435	Software Engineering	15
Spring 2014	CS 485	Intro Computer Networks	5
Spring 2014	ECE 331	Data Structures & Algorithms	26

- Officer Representative – Latin American Studies Club.

Sandia National Laboratories

1994 - 2001

Manager, Vulnerability Assessment Projects and Computer Science Department

- Led a six department team with 75 technical staff in the multi-disciplinary analysis of technologies used in systems for high consequence applications.
- Provided programmatic and technical guidance and technical for approximately 70 projects.

US Navy Reserve (Reserve)

1986 - 2008

Executive Officer, SPAWAR Information Security Unit

- Developed opportunities for officers to support fleet Information Security evaluation activities, primarily on shipboard installations.
- Developed Information Technology training programs for active-duty fleet personnel, using reservists as trainers, and served as the first trainer on the Afloat University program.
- Completed Microsoft Certified System Engineer (Windows 2000) certification.
- Certified Navy Trainer & Certified Microsoft Trainer

Sandia National Laboratories

1987 - 1994

Manager, Embedded Computers Department

- Led the development of a new generation of multi-processor flight computers in support of multiple flight programs. The development scope included all hardware, packaging, software development environment tools, operating systems, and flight test support.
- Initiated an enduring multi-million dollar processor development effort with the GPS program office that is still active in 2011.

Sandia National Laboratories

1979 – 1987

Member of Technical Staff

- Led research efforts to apply digital signal processing methods to improve intrusion detection systems, yielding better discrimination than the existing analog threshold detection circuits.
- Led research efforts to apply real-time Kalman filtering to navigation systems for terrestrial vehicles; successfully demonstrated high precision navigation when combining rudimentary sensors with digital terrain elevation data.
- Led research effort to integrate digital maps with navigation systems for live displays in military vehicles.
- Led the development of new real-time navigation, guidance, and control systems using modern microprocessors and high-level programming languages for flight applications.

Los Alamos National Laboratories

1976-1979

Technician

- Designed, built, tested, and installed digital control systems for the CO₂ laser mirrors used for the 10KJ laser fusion facility. Technologies included SSI, MSI, and LSI digital circuits and high power analog components in systems designed to operating in very high electrical noise environments.
- Provided training and ongoing support to the experimenters at the laser fusion facility.

Education:

University of New Mexico

2008 – 2015

Ph.D. Engineering

Research Focus: Design of computer architectures and system software to assure information security, while maintaining a high level of computational performance, with an emphasis on cloud computing.

Dissertation: Usage Management Enforcement in Cloud Computing Virtual Machines.

Stanford University

1979 – 1980

M.S. Electrical Engineering

Focus: Digital Control Systems and Digital Signal Processing

University of New Mexico

1977 – 1979

B.S. Electrical and Computer Engineering

With Distinction – Tied for #1 EECE Graduating Senior

Focus: Digital system design, analog electronics, and microprocessors

New Mexico State University

1970 – 1973

A.S. Electrical Engineering Technology

Meritorious Graduate

Awards:

Sandia National Laboratories, Individual Performance Award	2010
Sandia National Laboratories, Individual Performance Award	2009
Sandia National Laboratories, Individual Performance Award	2008
Sandia National Laboratories, Individual Performance Award	2007
Sandia National Laboratories, Individual Performance Award	2006
US Dept of Defense Meritorious Service Medal	2006
Los Alamos National Laboratories, Distinguished Performance Award	2005
US Navy Commendation Medal	2003
US Navy Meritorious Service Medal	2001
Sandia National Laboratories, Individual Performance Award	2001
Sandia National Laboratories, Individual Performance Award	2000
Sandia National Laboratories, Individual Performance Award	1997
US Navy and Marine Corps Achievement Medal	1997

Unclassified Publications:

“Usage Management Enforcement In Cloud Computing Virtual Machines”, PhD Dissertation, 2015.

“Policy-Based Security Provisioning and Performance Control in the Cloud”, CLOSER 2013.

“The Sandia Airborne Computer (SANDAC)”, Computing Systems in Engineering, Volume 3, Issues 1-4, 1992.

“A Land Navigation Demonstration Vehicle with a Color Map Display for Tactical Use”, IEEE PLANS '86 Position Location and Navigation Symposium, Nov 1986.

“GPS Manpack Receiver Performance in a Commercial Utility Cargo Vehicle Installation”, Sandia National Laboratories Technical Report, 1986.

“Odometer Damped Strapdown Inertial Navigation System Error Modeling”, Sandia National Laboratories Technical Report, 1986.

“Performance Studies of Terrain-Aided Land Navigation Systems”, Sandia National Laboratories SAND Report, 1985.

“A Terrain-Aided Land Navigation System”, Sandia National Laboratories SAND report, 1983.

“Exterior Alarm Combination Techniques”, Sandia National Laboratories Technical Report, 1982.

“Rocky Flats Plant Security Upgrade: Preliminary Buried Line Sensor Tests”, Sandia National Laboratories Technical Report, 1982.

“Effects of Polarization and Surface Composition on Exterior Perimeter Microwave Sensors Preliminary Report”, Sandia National Laboratories Technical Report, 1981.

Professional Memberships:

Institute of Electrical and Electronics Engineers, member

Association for Computing Machinery, member

Association of the United States Navy, Past National Vice President, District President, Chapter President

Reserve Officers Association, member, National Junior Officer of the year candidate

Amateur Radio Relay League, General Class License, K5EJN

Eta Kappa Nu

Tau Beta Pi