

RÉSUMÉ

FROST, VICTOR S.

Home Address: 1313 Raintree Place, Lawrence, Kansas (913) 841-3244

Citizenship: U.S.A.

EDUCATION

B.S.E.E., University of Kansas, 1977

M.S.E.E., University of Kansas, 1978, Honors

Ph.D.E.E., University of Kansas, 1982, Honors

AREAS OF SPECIALIZATION

Integrated Communication Networks, Internet Quality of Service, Network Modeling, High-Speed Networks, Network Simulation Techniques

PROFESSIONAL EXPERIENCE

- Feb 09 - Present Program Director at the National Science Foundation in CISE/CNS
- 1997- Present Dan F. Servey Distinguished Professor Electrical Engineering and Computer Science Department, University of Kansas
- 2000 - 2008 Director, Information and Telecommunications Technology Center, ITTC was one of the largest research centers at the University of Kansas, with approximately 150 faculty, staff, and students, and external expenditures averaging \$5.4 Million/year from FY1998-FY2007.
- 1997 - 1999 Acting Director, Information and Telecommunications Technology Center
- Spring 2007 Sabbatical - Visiting Erskine Fellow
University of Canterbury, Christchurch, New Zealand
- 1999 – 2000 Sabbatical
Technical Planning and Integration, Sprint Corp. Overland Park, Kansas
- 1996- 1997 Executive Director for Research
Information and Telecommunications Technology Center
- 1992 - 1997 Professor, Electrical Engineering and Computer Science Department,
University of Kansas

- 1987 - 1996 Director, Telecommunications and Information Sciences Laboratory (TISL), University of Kansas
- 1986 - 1992 Associate Professor, Electrical and Computer Engineering Department, University of Kansas
- 1986 - 1987 Associate Director, Telecommunications and Information Sciences Laboratory (TISL), University of Kansas
- 1982 - 1986 Assistant Professor, Electrical Engineering Department, University of Kansas
- Summer 1985 Resident visiting member of the technical staff at AT&T Information Systems Laboratory, Denver, Colorado. Performed simulation and measurement studies of local area networks.
- Summer 1983 United States Air Force Summer Faculty Fellow at Rome Air Development Center, Communications Division, Rome, New York. Research related to the analysis and simulation of spread-spectrum communication systems in jamming and intercept environments.
- 1978 - 1982 Project Engineer at the University of Kansas Remote Sensing Laboratory. Responsibilities included proposal preparation, direction of graduate and undergraduate research assistants, and reporting to contracting agencies. The research was aimed at determining the stochastic nature of radar images, evaluating the quality of such images, and developing digital processing techniques for radar data, e.g., enhancement and edge detection.
- 1976 - 1978 Research Engineer at the University of Kansas Remote Sensing Laboratory. Conducted research in the areas of radar image simulation and system modeling.
- July - Dec. 1981 Visiting Scientist at the German Aerospace Research Establishment (DFVLR) Institute for High Frequency, Oberpfaffenhofen, West Germany. Participated in an International Synthetic Aperture Radar (SAR) experiment. Performed an information theory analysis of SAR images. Developed and implemented image processing algorithms for SAR imagery.
- 1979 - 1981 President of ST*AR Corporation. Duties included proposal preparation, supervision of employees, negotiating with contracting agencies, and budgeting.

HONORS

Fellow IEEE-1998

National Science Foundation Presidential Young Investigator Award, 1984

Visiting Erskine Fellow, University of Canterbury, Christchurch, New Zealand, Spring 2007

Bellows Scholar for 2008 from the University of Kansas School of Engineering

Bellows Scholar for 2005 from the University of Kansas School of Engineering

Miller Scholar for 2002 from the University of Kansas School of Engineering

Included in the 2002 Kansas City Star "Tech 50" list, June 25, 2002

Included in the 2000 Kansas City Star "Tech 50" list, June 13, 2000

Elected 2002 member of the European Academy of Science

"for an outstanding and lasting contribution to communications networking and computer science education"

The 1991 Miller Professional Development Award for Distinguished Service to Engineering from the University of Kansas School of Engineering

The 1986 Miller Professional Development Award for Distinguished Service to Engineering Research from the University of Kansas School of Engineering

Society of Automotive Engineers Ralph R. Teetor Educational Award, 1984

Honors Undergraduate Research Grant from the University of Kansas, Summer 1976

PROFESSIONAL ACTIVITIES

Elected Positions

Elected to the IEEE Communications Society Board of Governors as a Member at Large 2008-2011

Chairman, Kansas City Section of the IEEE Communications Society, June 1991 - Dec. 1992

Chairman of the IEEE Communications Society Computer-Aided Modeling of Communications Systems Subcommittee, 1990 - 1992

Vice Chairman of the IEEE Communications Society Computer-Aided Modeling of Communications Systems Subcommittee, 1988-1990

Secretary of the IEEE Communications Society Computer-Aided Modeling of Communications Systems Subcommittee, 1986-1988

Editorships

Journals

Area Editor for Communications Simulation for ACM Transactions on Simulation and Modeling of Computer Systems 1997 – present

Associate Editor IEEE Communications Letters 1996 - 2000

Associate Editor ACM Transactions on Simulation and Modeling of Computer Systems 1996-1997

Guest Editor for IEEE Communications Magazine, Feature Topic on "Computer-aided Modeling and Simulation for Communications Networks," March 1994

Guest Editor for IEEE Journal on Selected Areas in Communications, "ATM LANs: Implementation and Experiences with an Emerging Technology," (with Jack Brassil, Ian Leslie, and Bryan Lyles) May 1995.

Guest Editor for IEEE Communications Magazine, Feature Topic on "Performance Experiences with Wide-Area High Speed Networks," August 1997 (with Donald L. Endicott Jr)

Books

Technical Editor for "ATM for Dummies" Cathy Gadecki and Christine Heckart, IDG Books Worldwide, 1997

Conference, Workshop, Transactions Activities

Co-organizer of the Second IEEE Communications Society Workshop on Computer-Aided Modeling, Analysis and Design of Communication Links and Networks (CAMAD '88), The University of Massachusetts, Amherst, Massachusetts, October 1988

Co-Organizer for the Silicon Prairie Technology Association Symposium on Industry/University Collaboration 1989

Session Organizer and Session Chairman for IEEE International Communications Conference, ICC '89, June 1989

Session Organizer and Session Chairman for IEEE International Conference on Systems Engineering, August 1989

Member of Technical Program Committee for IEEE Global Communications Conference, Globecom '90

Member of Organizing Committee for the Fourth IEEE Communications Society Workshop on Computer-Aided Modeling, Analysis, And Design Of Communication Links And Networks (CAMAD '92), Sept. - Oct. 1992

Session Organizer and Session Chairman at IEEE Global Communications Conference, Globecom '92

Member of the Technical Program Committee for IEEE INFOCOM '92

Member of the Technical Program Committee for IEEE INFOCOM '93

Member of the Technical Program Committee for IEEE INFOCOM '94

Session Chairman for IEEE INFOCOM '90

Session Chairman for IEEE INFOCOM '94

Session Organizer and Session Chairman at IEEE Global Communications Conference, Globecom '93

Technical Program Co-Chair (with Bhaskar Sengupta, NEC USA) for the Fifth IEEE International Workshop On Computer-Aided Modeling, Analysis, And Design Of Communication Links And Networks (CAMAD '94), Princeton, New Jersey, April 24 - 27, 1994

Session Moderator of the University of Kansas School of Business Stakeholders Biannual Symposium on Telecommunications, 1990-1993

Member of the Technical Program Committee for the IEEE Symposium on Planning and Design of Broadband Networks, Montebello, Quebec, Canada, Oct. 21-23, 1994

Session Chairman for 18th Biennial Symposium on Communications, Queen's University, Kingston, Ontario, Canada, June 4, 1996

Session Chairman for IEEE ICC'96

Co-Organizer (with Donald L. Endicott, Jr) 1996 DARPA Workshop on Wide-Area ATM Performance, Lawrence, Kansas June 19-20, 1996

Member of the Technical Program Committee for IEEE Symposium on Planning and Design of Broadband Networks, Montebello, Quebec, Canada, Oct. 17-20 1996

Organizer (with William Edwards, Tim Kelley, Frank DeNap) Sprint Applied Research Partners Advanced Networking Symposium, March 18-19, 1997, Nichols Hall, University of Kansas, Lawrence, Kansas

Member of the Technical Program Committee for IEEE Symposium on Planning and Design of Broadband Networks, Montebello, Quebec, Canada, Oct. 17-20 1996

Organizer (with William Edwards, and Rick Lett) Second Annual Sprint Applied Research Partners Advanced Networking Symposium, March 19-20, 1998, Nichols Hall, University of Kansas, Lawrence, Kansas

Organizer (with Tom Davis, Rick Lett, Mir Islam) Third Annual Sprint Research Symposium, March 8-9, 2000, Nichols Hall, University of Kansas, Lawrence, Kansas

Member of the program committee for the First IEEE Workshop on Disaster Recovery Networks, June 24, 2002, Hilton New York, New York City

Panel Chair at the First IEEE Workshop on Disaster Recovery Networks, June 24, 2002, Hilton New York, New York City

Member of the Technical Program Committee for the IEEE Internet Performance Symposium 2002

Member of the Technical Program Committee, 2003 IEEE Workshop on IP Operations and Management

Session Chairman, 2003 IEEE Workshop on IP Operations and Management

Member of the IEEE Transactions on Networking Inter-Society Steering Committee 2003-Present (Chairman 2005-2006, 2008-2009)

Tutorials

Computer-Aided Analysis and Design of Communications Systems (with W. Tranter and K.S. Shanmugan), one-day tutorial, 1986 IEEE Military Communications Conference

Computer-Aided Analysis and Design of Communications Systems (with W. Tranter and K. Kosbar), one-day tutorial, 1990 IEEE Military Communications Conference

Computer-Aided Analysis and Design of Communications Systems (with K. Kosbar), half-day tutorial, 1994 IEEE Global Communications Conference

Introduction to Communications Networks, Aug 4-8, 1997 TRW, Redondo Beach CA

Communications Networks, Oct. 19-23, 1998, Barcelona, Spain

Modern Communications Networks: Concepts and Simulation, May 31, June 4, 1999, Garmisch-Partenkirchen, Germany

State-Wide Committees

State of Kansas NSF EPSCoR Faculty Task Force-1991

State of Kansas DoD DEPSCoR Steering Committee 1995-1998

Kansas Inc. Task Force on Telecommunications

Senator Pat Roberts Task Force on Information, Telecommunications and Computing Technology, 1997-current

Legislative Presentations

“KU/TISL & Sprint: A successful Industry/University Partnership,”
Kansas House of Representatives, Economic Development Committee, January 29, 1996

“Trends in Telecommunications Technology,”
Kansas House of Representatives, Utilities Committee, February 20, 1998

"Information Technology: The Unpredictable Certainty"
Kansas Senate, Commerce Committee, January 20, 1999

"Information Technology: The Unpredictable Certainty"
Kansas House of Representatives, Utilities Committee, January 20, 1999

Board of Trustees

Member of the Board of Trustees of the University of Kansas Center for Research, Inc.
1985-2008

Member of the Executive Committee of the University of Kansas Center for Research, Inc.
1989-1993 and 2006-2007

Member of the Board of Trustees of the University of Kansas Self Fellowship Program
1993-1998

Member of the Board for the Lawrence Technology Association 2001-2003

Memberships

Fellow, IEEE

Member, Eta Kappa Nu, National Electrical Engineering Honor Society

Member, Tau Beta Pi, National Engineering Honor Society

Member, Sigma Xi

Member, IEEE Communications Society Technical Committee on Communications Systems
Engineering

Member, IEEE Communications Society Technical Committee on Computer Communications

Member of the Kansas City Area Silicon Prairie Technology Association Information
Technology Steering Committee 1988-1994

Reviewer

NSF Proposal Review Panels (86, 92, 93, 03, 04, 05, 07, 08)

DOE Proposal Review Panel, 1994

NASA Proposal Review Panel, 2003

Proposal reviewer for the Kansas Technology Enterprise Corp.

Reviewer for *IEEE Transactions on Communications*

Reviewer for *IEEE Journal on Selected Areas in Communications*

Reviewer for *IEEE Transactions on Aerospace Electronics Systems*

Reviewer for the 6th International Conference on Pattern Recognition October 1982

Reviewer for *IEEE Transactions on Geoscience and Remote Sensing*

Book Reviewer for Harper and Row Publishers

Reviewer for *IEEE Transactions on Education*

Reviewer for INFOCOM '89, '90, '91, '92, '93, '94, '95, '98'

Reviewer for IEEE ICC '91, '92, '93, '98'

Reviewer for IEEE Globecom

Reviewer for *IEEE Transactions on Parallel and Distributed Systems*

Reviewer for *IEEE Transactions on Networking*

Reviewer for *IEEE Communications Letters*

Reviewer for *IEEE Computer*

Reviewer for IEEE Computer Society Press

University Committees 2000-present

Departmental

Advocate for Dr. David Petr promotion to full professor, 2000
Advocate for Dr. Ron Hui promotion and tenure, 2001
Advocate for Dr. Susan Gauch promotion to full professor, 2003
Graduate Recruiting Committee, 2001, 2002
Promotion and Tenure Committee, 2001, 2002, 2003, 2004
Ad Hoc Committee on Bioinformatics, chair, 2003, 2004
Bioinformatics Faculty Search Committee, chair, 2002/2003, 2003/2004, 2004/2005
Digital Communications Faculty Search Committee, chair, 2004/2005
Advocate for Dr. Daniel Deavours promotion to Research Associate Professor, 2008
Untenured faculty review committee 2008
Prepared the Communications/Networking questions and solutions for PhD qualifying exam
2005, 2006, 2008

School

Chairman of the EECS Chair Search Committee 1999
Member of Engineering School Building Committee-1999
School of Engineering Promotion and Tenure Committee, 2000 (chair); 2001, 2002,
2003(member)
Miller Awards Committee, 2002
Sharp Professorship Selection Committee, 2004

University

KU Restricted Research Committee 2006-2008
KU Provost Search Committee 2005/2006
University Temporary Classification Committee, alternate member, 2001-2004
University RDF Review Committee, member, 2001-2002
ITTC KTEC bi-annual peer review, coordinator, 2001
KU Transportation Executive Committee, member, 2002
Digital Library Advisory Group, member, 2002
Ad Hoc Bioinformatics Committee, member, 2003, 2004
Bioinformatics Director Search Committee, member, 2003
TRI Director Search Committee, member, 2006
KUCR Promotion Committee, member, 2004, 2005
KUCR Kansas Economic Growth Act (KEGA) Committee, member, 2004

THESES

"Development of Statistical Models for Radar Image Analysis and Simulation," Master of Science, University of Kansas, Lawrence, Kansas, October 1978

"Information Analysis and Extraction Techniques for Synthetic Aperture Radar Signals," Doctor of Philosophy, University of Kansas, Lawrence, Kansas, April 1982

RESEARCH GRANTS AND CONTRACTS

Principal Investigator

1. Title: "Research in Information Extraction from Spaceborne Synthetic Aperture Radar Images"
Sponsor: NASA Headquarters
Period of Performance: November 1, 1982 - October 31, 1984
Amount: \$87,770
2. Title: "Simulation of Adaptive Antennas"
Sponsor: University of Kansas General Research Fund
Period of Performance: July 1, 1983 - June 30, 1984
Amount: \$4,500
3. Title: "Evaluation of the Interception of FH/PN Waveforms by a Scanning Cross Correlator Receiver"
Sponsor: Air Force Office of Scientific Research through subcontract with Southeastern Center for Electrical Engineering Education
Period of Performance: November 1, 1983 - October 31, 1984
Amount: \$12,000
4. Title: "Presidential Young Investigator Award"
Sponsor: National Science Foundation
Period of Performance: July 1984 - June 1989
Amount: \$312,000
5. Title: "Presidential Young Investigator Award"
Sponsor: AT&T Information Systems Laboratory
Period of Performance: July 1984 - 1989
Amount: \$187,500
6. Title: "Analysis of Terrain Scattering Properties for Navigation - Update Systems"
Sponsor: McDonnell Douglas Astronautics Company
Period of Performance: August 15, 1984 - January 15, 1985
Amount: \$22,487

7. Title: "Performance Evaluation of Local Area Networks"
Sponsor: AT&T Information Systems
Period of Performance: May 15, 1985 - August 15, 1985
Amount: \$19,566
8. Title: "A Study of High Capacity Modulation Schemes"
Co-Investigator: K. Sam Shanmugan
Sponsor: Hughes Aircraft Company
Period of Performance: July 15, 1985 - December 31, 1985
Amount: \$34,975
9. Title: "Two Dimensional HF Spatial Baseline"
Co-Investigator: K. Sam Shanmugan
Sponsor: Rome Air Development Center, U.S. Air Force
Period of Performance: April 1, 1986 - March 30, 1987
Amount: \$100,000
10. Title: "Innovative Techniques for Coding of Voice for Communications in Packet Networks"
Sponsor: University of Kansas Graduate Research Fund
Period of Performance: July 1, 1987 - June 30, 1988
Amount: \$5,076
11. Title: "Efficient Modeling Techniques of Large Heterogeneous LANs"
Sponsors: NCR Wichita and Kansas Technology Enterprises Corporation
Period of Performance: February 1, 1988 - January 31, 1989
Amount: \$37,647
12. Title: "Evaluation of SCSI Systems"
Sponsor: NCR Wichita
Period of Performance: February 1, 1988 - May 14, 1988
Amount: \$9,497
13. Title: "Development of Course on Information Network Planning, Service and Management"
Sponsor: AT&T
Period of Performance: December 1, 1988 - December 15, 1989
Amount: \$25,000
14. Title: "Congestion Control in Mixed Packet Networks Using Speech Processing"
Sponsor: AT&T
Period of Performance: September 1, 1989 - August 31, 1990
Amount: \$35,460

15. Title: "Modeling Networked Information Systems"
Sponsors: NCR Wichita and Kansas Technology Enterprise Corporation
Period of Performance: September 15, 1989 - September 14, 1990
Amount: \$82,657
16. Title: "Research in Computer Aided Analysis of Communications Networks Using a New Modeling Paradigm: The Block Oriented Network Simulator (BONeS)"
Sponsors: COMDISCO Systems, Inc., and Kansas Technology Enterprise Corporation
Period of Performance: December 12, 1989 - December 11, 1990
Amount: \$36,471
17. Title: "Development of New Modeling Structures Within the Block Oriented Network Simulator (BONeS)"
Sponsors: COMDISCO Systems, Inc., and Kansas Technology Enterprise Corporation
Period of Performance: October 1, 1990 - December 30, 1991
Amount: \$44,629
18. Title: "Support of Future Battle Laboratories CINCUSAREUR Project"
Sponsor: SRI
Period of Performance: July 15, 1990 - November 15, 1990
Amount: \$2,500
19. Title: "Research in Technologies in Modeling of Telecommunication Networks"
Sponsor: COMDISCO Systems, Inc.
Period of Performance: November 1, 1991 - June 15, 1992
Amount: \$24,966
20. Title: "Research on Gigabit Gateways: Access to the Future Public Switched Network"
Sponsor: Defense Advanced Research Projects Agency
Period of Performance: June 10, 1992 - June 9, 1995
Amount: \$565,907
21. Title: "Equipment and Facilities for Research on Gigabit Gateways: Access to the Future Public Switched Network"
Sponsors: Digital Equipment Corp., Sprint, Southwestern Bell Corp., Northern Telecom Inc., and Kansas Technology Enterprise Corporation
Period of Performance: June 10, 1992 - June 9, 1995
Amount: \$960,000
22. Title: "Research on Real Time Estimation of Traffic Descriptors for High Speed Telecommunications Networks"
Sponsor: Bell Northern Research Inc.
Period of Performance: May 15, 1993 - December 31, 1993
Amount: \$23,700

23. Title: "ACTS ATM Internetwork"
Sponsor: DARPA (Prime contractor - Sprint Corp.)
Period of Performance: July 1, 1994 - June 30, 1998
Amount: \$658,691
24. Title: "Development of a Large-scale ATM Network Simulation Environment"
Sponsor: Sprint Corp.
Period of Performance: April 20, 1995 - October 19, 1996
Amount: \$122,111
25. Title: "Collection and Application of ATM Network Performance Characteristics"
Sponsor: Sprint Corp.
Period of Performance: June 16, 1995 - June 15, 1996
Amount: \$274,930
26. Title: "Advanced ATM Research"
Sponsor: NEC
Period of Performance: Jan 1, 1997 - Dec 31 15, 1997
Amount: \$100,000
27. Title: "Interworking and Traffic Management for Advanced Networks"
Sponsor: Sprint Corp.
Period of Performance: July 21, 1999- June 30, 2000
Amount: \$273,357
28. Title: "Network Capacity Trade-offs for Traffic Aggregation in Future Networks"
Sponsor: Sprint Corp.
Period of Performance: 5/1/00-4/30/01
Amount: \$50,000
29. Title: "Engineering the Next Generation of Communications Networks:
Proposal for Sabbatical Support"
Sponsor: Sprint Corp.
Period of Performance: 8/16/99 – 7/31/00
Amount: \$128,610
30. Title: "Wireless Smart Devices and their Coordination"
Sponsor: Ambient Computing Inc.
Period of Performance: 1/1/02 – 6/30/02
Amount: \$25,103
31. Title: "Quantifying the Temporal Characteristics of Congestion Events in the Internet"
Sponsor: National Science Foundation
Period of Performance: 9/1/02 – 8/30/07
Base Amount: \$249,807
REU Supplement: \$36,460

32. Title: "Development Multilink PPP Technologies
Sponsor: Harris Corporation-Government Communications Systems Division
Period of Performance: 9/1/03 – 10/31/03
Amount: \$14,133
33. Title: "Development of an Integrated Bioinformatics Information Infrastructure"
Sponsor: US Army
Period of Performance: 9/29/04 - 12/31/06
Amount: \$2,147,000
34. Title: "A Computing Facility for Bioinformatics and Life Sciences Research"
Sponsor: US Dept. of Health and Human Service, Health Resources and Services Adm.
Period of Performance: 09/01/2004 - 08/31/2005
Amount: \$492,000
35. Title: "In-Service Monitoring for Congestion Events in IP Networks"
Sponsor: Sprint
Period of Performance: 06/30/2005 - 07/1/2006
Amount: \$25,000
36. Title: "Development of Technologies for Trusted Corridors"
Sponsor: KU Transportation Research Institute (through US DoT grant)
Period of Performance: 08/18/06 - 12/15/07
Amount: \$174,706
37. Title: "Robust Millimeter Wave Metropolitan Mesh Network"
Sponsor: Sprint
Period of Performance: 04/1/2007 - 03/31/2008
Amount: \$169,310
38. Title: "Robust Wireless Mesh Networking Research: Extension to 23GHz"
Sponsor: Sprint
Period of Performance: 10/15/2007 - 10/14/2008
Amount: \$63,000

Co-Principal Investigator

1. Title: "AT&T 1985 University Equipment Donation Program"
Co-Principal Investigator: G.J. Minden
Sponsor: AT&T
Amount: \$684,375 (Equipment, software, and maintenance)
2. Title: "AT&T 1986 University Equipment Donation Program"
Co-Principal Investigator: W.G. Bulgren
Sponsor: AT&T
Amount: \$553,008 (Equipment, software, and maintenance)

3. Title: "AT&T 1987 University Equipment Donation Program"
Co-Principal Investigator: W.G. Bulgren
Sponsor: AT&T
Amount: \$600,000 (Equipment, software and maintenance)
4. Title: "Research on Lightwave Communications Systems"
Co-Principal Investigator: Kenneth Demarest
Sponsor: Sprint Corp.
Period of Performance: January 1, 1996 - December 31, 1998
Amount: \$2,690,018
5. Title: "MAGIC-II: A Large-Scale Internetwork Supporting High Speed Distributed Storage, Processing and Applications"
Co-Principal Investigator: I. Richer, CNRI
Sponsor: ARPA
Period of Performance: August, 1996 - January 14, 1999
Amount of Prime Contract: \$3,414,743
Subcontractors: CNRI, MITRE, SRI International, Minnesota Supercomputer Center
Amount of KU component-J. Evans Principal Investigator: \$777,707
6. Title: "Determination of the Impact of Advanced Traffic Controls on the Performance of Edge/Core ATM Network Architectures"
Co-Principal Investigator: Joseph Evans, Douglas Niehaus, David Petr
Sponsor: Sprint Corp.
Period of Performance: January 1, 1997 - December 31, 1998
Amount: \$893,66
7. Title: Center of Excellence: Information and Telecommunications Technology Center
Co-Principal Investigator: Tim Johnson
Sponsor: KTEC
Period of Performance: Continuing
Amount: \$3,499,802 (for period July 1, 2000 to June 30, 2005)
8. Title: "Complexity, Implementation, and Management Trade-offs for Traffic Aggregation in Future Networks"
Co-Principal Investigator: Douglas Niehaus
Sponsor: Sprint Corp.
Period of Performance: 15 June 2000 – 14 June 2001
Amount: \$170,000

Co-Investigator

1. Title: "Computer Simulation of Spread Spectrum Systems Operating in Jamming Environments"
Principal Investigator: K.S. Shanmugan
Sponsor: U. S. Air Force/RADC
Period of Performance: September 1982 - September 1983
Amount: \$50,000
2. Title: "Modification and Implementation of Data Management Software for Radar Image Simulation"
Principal Investigator: J.C. Holtzman
Sponsor: Mitsubishi International Corporation
Period of Performance: December 1, 1982 - January 31, 1983
Amount: \$30,000
3. Title: "Development of a Simulation Model to Predict Interference of Spread Spectrum Networks on Non-Spread Spectrum Networks"
Principal Investigators: J.C. Holtzman and K.S. Shanmugan
Sponsor: U. S. Army CSEI
Period of Performance: July 1, 1983 - June 30, 1986
Amount: \$469,000
4. Title: "ICSSM EHF Communication Enhancement"
Principal Investigator: K.S. Shanmugan
Sponsor: U. S. Air Force/RADC
Period of Performance: August 8, 1983 - September 30, 1983
Amount: \$50,000
5. Title: "Modify, Enhance and Install the Radar Image Simulation System (RIS) at the DFVLR Facility"
Principal Investigator: J.C. Holtzman
Sponsor: German Aerospace Research Establishment/DFVLR
Period of Performance: June 1, 1983 - May 31, 1984
Amount: \$40,000
6. Title: "Shuttle Imaging Radar-B (SIR-B) Data Analysis"
Principal Investigator: R.K. Moore
Sponsor: NASA
Period of Performance: June 1984 - September 1984
Amount: \$25,000

7. Title: "Development of Data Transmission System CAD Package for ITT/ATC"
Principal Investigator: K.S. Shanmugan
Sponsor: ITT
Period of Performance: August 1, 1985 - July 30, 1986
Amount: \$35,000
8. Title: "Advanced Spatially Adaptive Propagation Program"
Principal Investigator: K.S. Shanmugan
Sponsor: Rome Air Development Center
Period of Performance: March 1985 - March 1986
Amount: \$54,000
9. Title: "RAKE Filter for ICS"
Principal Investigator: K.S. Shanmugan
Sponsor: Rome Air Development Center
Period of Performance: August 1, 1985 - July 30, 1986
Amount: \$50,000
10. Title: "Extension and Installation of the Radar Image Simulation System"
Principal Investigator: J.C. Holtzman
Sponsor: Northrop Research Center
Period of Performance: January 1, 1985 - June 30, 1985
Amount: \$35,000
11. Title: "Development of Software for Interactive Teaching-Learning of Electromagnetic Theory"
Principal Investigator: P. Gogineni
Sponsor: AT&T
Period of Performance: November 1, 1987 - May 1, 1989
Amount: \$86,500 (value of 6 AT&T 630 Terminals and a 3B2/500)
12. Title: "Network Modeling"
Principal Investigator: W.G. Bulgren
Sponsor: AT&T
Period of Performance: September 1, 1989 - August 31, 1990
Amount: \$30,357
13. Title: "Computer Aided Design Meta-Tools"
Principal Investigator: P. Gogineni
Sponsor: AT&T
Period of Performance: September 1, 1984 - August 31, 1990
Amount: \$15,000 (for purchase of workstation)

14. Title: "A Study of the Role of ACTS in Remote Manufacturing Operations"
Principal Investigator: C. Tsatsoulis
Sponsor: NASA
Period of performance: 11/15/90 - 5/15/91
Amount: \$45,446
15. Title: "Development of Bandwidth Assignment Algorithms and Performance Simulation Software"
Principal Investigator: D.W. Petr
Sponsor: Telesat Canada
Period of Performance: 9/15/90 - 12/15/90
Amount: \$25,000
16. Title: "Analysis and Simulation of Traffic Management Algorithms for Frame Relay/Fast Packet Networks"
Principal Investigator: D.W. Petr
Sponsors: Sprint International and Kansas Technology Enterprise Corporation
Period of Performance: 5/1/91 - 11/8/91
Amount: \$35,291
17. Title: "For Equipment in Support of Research on Gigabit Gateways: Access to the Future Public Switched Network"
Principal Investigator: G.J. Minden
Sponsor: Digital Equipment Corporation, CRINC, and TISL
Period of Performance: 6/10/92 - 6/11/95
Amount: \$98,299
18. Title: "Evaluation of Broadband Networking Technologies"
Principal Investigator: D.W. Petr
Sponsors: Sprint Corp.
Period of Performance: 5/15/92 - 5/14/93
Amount: \$66,462
19. Title: "Design Rules and Associated Tools for ATM Networks"
Principal Investigator: D.W. Petr
Sponsors: Sprint Corp. and Kansas Technology Enterprise Corporation
Period of Performance: 5/16/93 - 5/15/95
Amount: \$162,888
20. Title: "For Equipment in Support of Research on Gigabit Gateways: Access to the Future Public Switched Network"
Principal Investigator: G.J. Minden
Sponsor: Digital Equipment Corporation
Period of Performance: 6/10/93 - 6/11/94
Amount: \$74,427

21. Title: "Voice Transport via ATM Networks"
Principal Investigator: D.W. Petr
Sponsor: Sprint Corp.
Period of Performance: 8/16/93 - 8/15/94
Amount: \$120,900
22. Title: "Rapidly Deployable Radio Network (RDRN) Design and Prototyping"
Principal Investigator: K.S. Shanmugan
Sponsor: ARPA
Period of Performance: 7/1/94 - 6/30/97
Amount: \$1,596,433
23. Title: "Traffic Management and Controls for ATM Networks"
Principal Investigator: DW. Petr
Sponsor: Sprint
Period of Performance: 1/1/95 - 12/31/97
Amount: \$466,200
24. Title: "Development and Testing of Advanced Signaling Protocols for ATM Networks"
Principal Investigator: D. Niehaus
Sponsor: Sprint
Period of Performance: 10/15/94 - 10/14/95
Amount: \$99,974
25. Title: "ATM Reference Traffic Source"
Principal Investigator: D. Niehaus
Sponsor: Sprint
Period of Performance: 05/15/95 - 12/31/95
Amount: \$200,000
26. Title: "A Wireless Extension to the ACTS ATM Internetwork"
Principal Investigator: J.B. Evans
Sponsor: Sprint
Period of Performance: 1/1/95 - 12/31/97
Amount: \$522,343
27. Title: "CDMA Capacity Assessment for Personal Wireless Communications"
Principal Investigator: J. Roberts
Sponsor: Sprint
Period of Performance: 10/9/95 - 8/15/97
Amount: \$150,000
28. Title: "ATM Available Bit Rate Service Simulation Models"
Principal Investigator: J. Evans
Sponsor: Integrated Telecom Technologies (IgT)
Period of Performance: 1/1/96 - 12/31/96
Amount: \$35,000

29. Title: "Wireless ATM Adaptive Voice/Data Networks"
Principal Investigator: J. Evans
Sponsor: Integrated US Air Force Rome Labs
Period of Performance: 9/30/95 - 12/31/98
Amount: \$408,842
30. Title: "Establishment of a Lightwave Laboratory for Applications Focused Research"
Principal Investigator: K. Demarest
Sponsor: NSF and Kansas Technology Enterprise Corporation
Period of Performance: 8/1/96-7/31/98
Amount: \$1,056,120 (NSF/EPSCoR \$643,603, KTEC \$412,517)
31. Title: "Performance Evaluation of IP Firewalls over ATM Networks"
Principal Investigator: J. Evans
Sponsor: Trusted Systems Inc
Period of Performance: 11/15/96-1/31/97
Amount: \$9,300
32. Title: "Rapidly Deployable Radio Network (RDRN)-Phase II"
Principal Investigator: J. Evans and K. Sam Shanmugan
Sponsor: DARPA
Period of Performance: 6/20/97-12/19/99
Amount: \$1,499,074
33. Title: "Performance Tuning Study and Tools for Computers Systems Connected to the DREN"
Principal Investigator: J. Evans
Sponsor: Space and Naval Warfare Systems Command-San Diego
Period of Performance: 11/1/97-4/30/98
Amount: \$24,500
34. Title: "ALL2 Call/Connection Control Signaling"
Principal Investigator: J. Evans
Sponsor: Sprint
Period of Performance: 1/1/98-12/31/99
Amount: \$235,900
35. Title: "Broadband Wireless Local Loop"
Principal Investigator: J. Evans
Sponsor: Sprint
Period of Performance: 1/1/98-12/31/99
Amount \$431,800

36. Title: "Enhancement of the KU PNNI Performance Evaluation Tools"
Principal Investigator: D. Niehaus
Sponsor: Sprint TP&I and NP&D
Period of Performance: 1/1/99-12/31/99
Amount: \$419,600
37. Title: "Network Monitoring for Performance Analysis and for Enabling Network-Aware Applications"
Principal Investigator: Joseph Evans
Sponsor: Department of Energy
Period of Performance: 7/15/99 - 7/14/02
Amount: \$502,797
38. Title: "Ambient Computing Environments"
Principal Investigator: Joseph Evans and Gary Minden
Sponsor: Sprint
Period of Performance: 4/1/00-5/29/01
Amount: \$360,000
39. Title: "Large ITR-A Mobile Sensor Web for Polar Ice Sheet Measurements"
Principal Investigator: Prasad Gogineni
Co- Investigators: Chris Allen, Glenn Prescott, Arvin Agah, David Braaten, Costas Tsatsoulis
Sponsor: NSF, NASA, KTEC
Period of Performance: 10/1/01- 9/30/06
Amount: \$8,715,000
40. Title: "A Unified Architecture for SensorNet with Multiple Owners"
Principal Investigator: Gary Minden
Co- Investigators: David Petr, Douglas Niehaus, Dan Deavours
Sponsor: Oak Ridge National Laboratory
Period of Performance: 8/15/05- 8/15/07
Amount: \$929,655
41. Title: "A Unified Architecture for SensorNet with Multiple Owners: Supplement to Advance SensorNet Technologies to Monitor Trusted Corridors"
Principal Investigator: Gary Minden
Co- Investigators: Joseph Evans, Dan Deavours
Sponsor: Oak Ridge National Laboratory
Period of Performance: 6/15/07- 6/14/09
Amount: \$1,541,588 (KU \$816,178)
42. Title: "Rail Sensor Testbed Active Agents in Containers for Transport Chain Security"
Principal Investigator: Joseph Evans
Co- Investigators: Gary Minden, Costas Tsatsoulis
Sponsor: Office of Naval Research
Period of Performance: 6/25/07- 6/24/09
Amount: \$1,217,000

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Chapter 6, "Modeling and Simulation in Network Management," in *Network Management into the 21st Century*, ed. S. Aidarous and T. Plevyak, IEEE Press, 1994.

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KEYNOTE ADDRESSES

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4. "An Image Simulation Model for Radar Guidance," (with J.C. Holtzman, V.H. Kaupp, J.L. Abbott), Ninth Annual Pittsburgh Conference on Modeling and Simulation, The University of Pittsburgh, Pittsburgh, Pennsylvania, April 1978.
5. "Computer Generated Radar Images for Navigation," (with J.C. Holtzman, J.A. Stiles, V.H. Kaupp), *Proceedings of the Military Electronics Expo*, Anaheim, California, November 14 - 16, 1978.
6. "Seasonal Effects on Radar Imagery as Predicted by the PSM Simulation Techniques," (with J.C. Holtzman, J.A. Stiles, E.E. Komp, E.S. Bergan, V.H. Kaupp), Tenth Annual Pittsburgh Conference on Modeling and Simulation, The University of Pittsburgh, Pittsburgh, Pennsylvania, April 1979.
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Canada, June 7-9, 1999.

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Priority Traffic on Public Networks," IEEE MILCOM '99.

65. Cory C. Beard and Victor S. Frost, "Ticket Server Performance Evaluation Using a Hybrid
Simulation Approach", *Proceedings of the SCS 2001 Applied Telecommunication Symposium*,
Seattle, Washington, April 2001.

66. Towela P.R. Nyirenda-Jere Victor S. Frost Nail Akar "Traffic Handling and Network
Capacity in Multi-Service Networks", IEEE Globecom, San Antonio, Tx, November 2001

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Internet Capacity," SPIE ITCOM 2001, 20-24, Denver, Colorado August 2001.

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of Variability," IASTED International Conference on Modelling and Simulation
(MS 2003) February 24-26, 2003, at Palm Springs, California.

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System Providing Internet Access to Polar Expeditions", American Geophysical Union Fall
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Networking in Polar Regions," International Symposium on Advanced Radio Technologies,
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75. Yasong Jin, Soshant Bali, Tyrone E. Duncan, Victor S. Frost, "Properties of Congestion Events for a Queue with Fractional Brownian Traffic," Poster at Conference on Stochastic Networks, June 19-24, 2006, University of Illinois at Urbana-Champaign

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77. Abdul Jabbar, Bharatwajan Raman, Bharatwajan Raman, Victor Frost, James P.G. Sterbenz, "Weather Disruption-Tolerant Self-Optimising Millimeter Mesh Networks" 3rd International Workshop on Self-Organizing Systems 2008.

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WORKSHOPS AND PANELS

1. "Communications Systems Simulation: Theory, Applications and Design Examples," (with K.S. Shanmugan, J.C. Holtzman, G.J. Minden, C. Townsend), Coventry Polytechnic Conference, Coventry, England, September 1985.

2. "Computationally Efficient Procedures for the Simulation of Computer Networks," (with K.S. Shanmugan), IEEE Communications Society Workshop in Computer-Aided Modeling, Analysis and Design of Communications Links and Networks, The University of Kansas, Lawrence, Kansas, May 6 - 8, 1986.

3. "Performance Extrapolation Techniques for HDLC Links and Networks," (with W.W. LaRue), Second IEEE Communications Society Workshop on Computer-Aided Modeling of Communications Links and Networks, Univ. of Massachusetts, Amherst, Massachusetts, October 1988.

4. "The Evolution of the Telecommunications Network," Southwestern Bell Stakeholders Symposium on Telecommunications, University of Kansas, Lawrence, Kansas, May 14-16, 1990.

5. "A Discussion of Modeling Paradigms for Communications Network Simulation," (with K.S. Shanmugan), Third IEEE Communications Society Workshop on Computer-Aided Modeling of Communications Links and Networks, Torino, Italy, September 26-28, 1990.

6. "The Impact of Modeling Abstraction on Network Simulation," (with G. Saurez), Third IEEE Communications Society Workshop on Computer-Aided Modeling of Communications Links and Networks, Torino, Italy, September 26-28, 1990.
7. Featured Speaker for the COMDISCO Systems, Inc. Technical Seminar Series, "Applications and Technologies Showcase: New techniques for the design and management of communications and computer networks" Bedford Massachusetts, November 20, 1991.
8. "Modeling Frameworks and Architectures" Globecom '91 Workshop on Network Management Techniques and Standards, Globecom '91 Dec. 2, 1991, Phoenix AZ. **INVITED**
9. "The Future of Telecommunications: Technology," Creating Tomorrow's Telecommunications Task Force Stakeholder's Forum, Regents Telecommunications Task Force, Topeka, Kansas, February 14, 1992. **INVITED**
10. "Introduction to High Speed Networks," Kansas City IEEE Section Workshop on High Speed Networks, Overland Park, Kansas, June 30, 1992.
11. "Validation of a Modified Source Routing Protocol Providing Route-Reconfiguration Using Discrete Event Simulation" (with T. Kelley), Fourth IEEE Communications Society Workshop on Computer-Aided Modeling of Communications Links and Networks, Montebello, Canada, September 29-October 2, 1992.
12. "Position Paper," Workshop on HPCC and Crisis Management, National Research Council, Computer Science and Telecommunication Board, Irvine Cal. June 12-13, 1995. **INVITED**
13. "Overview of the MAGIC Testbed," War Fighters XXI Training Conference, Lawrence, Kansas, August 4, 1995. **INVITED**
14. "Experiences with ATM Traffic Control in MAGIC," 1995 MAGIC Technical Symposium, Minneapolis, Minnesota, July 31-August 2, 1995. **INVITED**
15. "Characterization of Over the Shoulder Tool: A Collaborative Application Enabled by the MAGIC High-Speed Network," 1995 MAGIC Technical Symposium, Minneapolis, Minnesota, July 31-August 2, 1995. **INVITED**
16. "KU/TISL & Sprint: A Successful Industry/University Partnership", State of Kansas House Committee on Economic Development, Topeka, Kansas, January 29, 1996
17. J. B. Evans, V. S. Frost, D. Niehaus, R. Jonkman, L. Dasilva, B. Lee, G. Lazarou, "AAI ATM WAN Performance Tools, Experiments, and Results," 1996 DARPA Workshop on Wide-Area ATM Performance, Lawrence, Kansas, June 19-20, 1996

18. A. B. Kulkarni, G. Minden, S. Frost, J. Evans, "An Active Network Architecture for ATM WANS", 3rd International Workshop on Mobile Multimedia Communications, Princeton, New Jersey, Sept. 25-27 1996.
19. "Industry/University/Government Partnership in Information and Telecommunications Research", Second Annual Regional SBIR/EPSCoR Conference, October 10, 1996.
20. "Performance Measurements on National Scale ATM Network", Second Annual Sprint Applied Research Partners Advanced Networking Symposium, March 19-20, 1998, Nichols Hall, University of Kansas, Lawrence, Kansas
21. J. B. Evans, V. S. Frost, G. J. Minden, A. Kulkarni, I. Deendar, "Active Networks and Wireless Adaptation", Cross-Industry Workshop on End-to-End Wireless Integration, Menlo Park, California, August 1998.
22. J. B. Evans, V. S. Frost, G. J. Minden, "Service Independent Access Points (SIAP) to Optical Wide Area Networks," 1998 *IEEE Gigabit Networking Workshop*, March 1998.
23. "An Overview of the Senator Roberts' Advisory Committee on Science, Technology and the Future: Task Force on Information, Telecommunications, and Computing" *University After Next Quarterly Review*, Ft. Leavenworth, Leavenworth Kansas, June 22, 1999
24. Towela P.R. Nyirenda-Jere and Victor S. Frost, "Finding Your Shade of Grey on the Network Spectrum", Sprint Research Symposium 2000, Lawrence, Kansas, 8-9 March 2000.
25. Victor S. Frost, "Perspectives on Engineering Education for Next Generation Networks," Panel on How to Prepare Engineers for Tomorrow's Networks, IEEE ICC 2002, New York, New York, April 2002.
26. Victor S. Frost and Joseph B. Evans, "Breadth and Experience in Education for Next Generation Networks" Workshop on Computer Networking: Curriculum Design and Educational Challenges, August 20, 2002, Pittsburgh Pa.
27. Matthew C. Schlesener and Victor S. Frost, "Performance Evaluation of Telephony Routing over IP (TRIP)," 2003 IEEE Workshop on IP Operations and Management (IPOM), Kansas City, Mo., October 1-3, 2003.
28. Victor Frost "Experiences with an Iridium Based Communications System in Polar Regions", Technical Workshop on Applications of Iridium Telecommunications to Oceanographic and Polar Research, University of Washington, Seattle, 19-21 May 2004.
28. James P.G. Sterbenz, Victor S. Frost, Alexander M. Wyglinski, Abdul Jabbar Mohammad, Vinay Muralidharan, Bharat Raman "Weather Disruption-Tolerant Millimeter Wave Wireless Mesh: Architecture and Research", International Wireless Industry Consortium Workshop, Toward Use of Gigabit Millimeter Wave Wireless in Cellular and Enterprise Networks, Dulles, Virginia, 20 June, 2007.

29. Victor S. Frost, Gary J. Minden, Joseph B. Evans, Leon S. Searl, Edward Komp, Daniel Depardo, Martin Kuehnhausen, Matthew Zeets, Daniel T. Fokum, Angela N. Oguna “Service Oriented Architecture for Monitoring Cargo in Motion Along Trusted Corridors”, poster accepted for HotMobile 2009, The Tenth Workshop on Mobile Computing, Systems, and Applications, Santa Cruz, CA, USA, February 23-24, 2009

CHAIRMAN OF STUDENT THESIS AND DISSERTATION COMMITTEES

Doctoral Degree in Electrical Engineering/Computer Science

1. David Petr
2. Qinglin Wang
3. William LaRue
4. Steve Bush
5. Steve Oliva
6. Cory Beard
7. Georgios Lazarou
8. Towela P. R. Nyirenda-Jere
9. Wesam Alanqar
10. Xuejun Mao
11. Soshant Bali

Master's Degree in Electrical Engineering/Computer Science

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| 1. Rajagopalan Ananthanpillai | 21. Tim Kelley |
| 2. Latha Arun-Kant | 22. Woody LaRue |
| 3. Rachmat Basuki | 23. Rick Lett |
| 4. Tom Baumgartner | 24. Alan McKee |
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| 15. Ed Friedman | 35. Roger Spohn |
| 16. Kent Gaylor | 36. Arief Suharko |
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| 18. John Johnson | 38. Keith Townsend |
| 19. Mohammed Kashfipour | 39. Kevin Wagner |
| 20. Prabhudeva Kavi | 40. Brad Wood |

41. Stavros Yiannaki
42. Esmaell Yousefi
43. Leo Yurovsky
44. Hongbo Zhu
45. Dorothy Rubaihayo
46. Towela Nyirenda
47. Sunil Jagannath
48. Isaac Eyeson
49. Soma Muppidi
50. Antoine Lawrence
51. Beng-Ong Lee
52. Sohel Khan
53. Charalmbous P. Charalmbous
54. Harttha Pindi
55. Ananth Nagarajan
56. Ajay Uggirala
57. Saravanan Radmakrishnan
58. Sreenivasamurthy Deepak
59. Balaji Prasad
60. Ming Chang
61. Michael Todd Gardner
62. Mahesh Akarapu
63. Matt Schlesener
64. Peter Sickle
65. Abdul Mohammad Jabbar
66. Said Zaghoul
67. Satyasree Muralidharan

Courses Taught

EECS 360 Signal Analysis
EECS 444 Control Systems
EECS 461 Probabilistic Analysis
EECS 562 Introduction to Communications Systems
EECS 663 (Renumbered to EECS 563) Introduction to Communications Networks
EECS 766 Resource Sharing for Broadband Access Networks
EECS 861 Random Signal Theory
EECS 863 Analysis of Communications Networks
EECS 864 Optical Communications Networks
EE 864 Communication System Planning & Design