KAREN A. PANETTA

EDUCATION:

June 1994 **Ph.D.** ***Northeastern University***, Boston, MA, Electrical Engineering

Minors: Robotics (vision and control) and Information Systems

Thesis Topic: Multiple Domain Concurrent Simulation of Interacting Experiments

June 1988 **M.S.** ***Northeastern University***, Boston, MA, Electrical Engineering

May 1985 **B.S.** ***Boston University***, Boston, MA, Computer Engineering

Career Highlights:

Several awards for outstanding teaching and mentoring, creative curriculum development and outreach activities. Recognized as the only educator in Massachusetts for Engineering Technology advancement by Mass High Tech Magazine, 2003. Dr. Panetta is the recipient of several NASA and National Science Foundation Research Grants, including the NSF CAREER Award. Performed engineering outreach activities to over 7500 Massachusetts school children, parents and educators through the Nerd Girls Program in 2003-2006.

PROFESSIONAL EXPERIENCE:

Institute of Electrical and Electronic Engineers (IEEE), Women In Engineering (WIE) Chair

2007-2009

- Director for the world's largest professional women's engineering and science organization. With over 135 WIE Affinity Groups worldwide, Dr. Panetta is responsible for driving this organization's strategic plan, overseeing the budget and developing programs to help attract, retain and support women in engineering at all stages of their careers.
- Editor for the upcoming IEEE Women in Engineering Magazine and Co-editor for the WIE Newsletter.

IEEE, Education Society Chair, Central New England Section *2004-present*

- Responsible for overseeing all IEEE Education Society chapters in Massachusetts, Rhode Island, Connecticut and New Hampshire.

Tufts University, Department of Electrical and Computer Engineering, *Medford, MA*

Associate Professor	2001- present
Assistant Professor and ***NASA*** *Langley Research Scientist, JOVE program*	1996- 2001
Visiting Professor	1995- 1996

- Responsible for instructing computer engineering core courses including microprocessor design, operating systems, digital logic and analog circuits, digital system testing and computer animation.
- Director of the Simulation Research Laboratory at Tufts University. Current research areas include the development of image processing algorithms for enhancement and security, simulation, behavioral modeling and reliability analysis for multi-level systems including embedded processors and MEMS components..http://simlab.eecs.tufts.edu
- Co-developer of the interdisciplinary Multimedia and arts minor. This was the first program in the United States that paired liberal arts students with engineers.
- Developed the first interdisciplinary projects in "Sports Engineering" at Tufts University.
- Created the "Breaking the Stigmas and Stereotypes of Women in Engineering and Science: The Nerd Girls Project." The program encourages young girls to pursue engineering and science careers and shows all young children that Engineers are cool and very talented. Website: http://nerdgirls.eecs.tufts.edu. Articles on Dr. Panetta and her award winning team have appeared in ElleGirl.Com, the Boston Globe, August 2002, written by Jena Russell, Newsweek Magazine, September 2002, written by Karen Springen and the IEEE Institute, September 2002, written by Helen Horowitz.
- Faculty Advisor for the Robotics Academy at Tufts University and Faculty Advisor for the IEEE Student Chapter, which sponsors the "Junk Yard Wars in Engineering" and the IEEE robotics competition. Developed the "Robot Escape!" and "Virtual Student Pets" design projects for the advanced digital design course within the Electrical and Computer Engineering department.
- Selected by Tufts University President Lawrence S. Bacow to be a member of the Tufts University Task Force on Undergraduate Education. This committee of 5 faculty and 2 students is responsible for designing the future of the Tufts Undergraduate education.

MACOM/Tyco Electronics, Lowell, MA 2000- present

Design Consultant

- Designed High-Speed 0C48 communications equipment utilizing SiGe and GaAs processes.
- Participated in critical design reviews for projects involving mixed signal FPGA/microwave systems.
- Assisted corporate R&D in evaluating outside contractor designs.
- Served as the resident digital and mixed-signal system design consultant.
- Designed interfaces to be compliant with IEEE LVDS standards.

General Scanning, Bedford, MA

Consultant 1997- 1999

- Project consultant for new embedded processor based thermal printer designs.
- Evaluated real-time operating systems for new designs.
- Reviewed project specifications including, electrical, diagnostic, and safety specifications.

Digital Equipment Corporation, Hudson, MA

Principal Software Engineer 1991-92

- Developed the modeling, fault simulation and manufacturing test strategy for ALPHA 21064 RISC processor.
- Performed simulation tools need analysis for Engineering, Manufacturing and Test.

Fault Simulation Project Leader 1989-91

- Directed research and development of fault simulation techniques for the ALPHA 21064 architecture.
- Co-developer of the DECSIM corporate simulator. Tasks included developing concurrent software algorithms for advanced features and technical customer support for the product.

Senior Software Engineer 1987-89

- Designed and implemented a Min-Max timing verification tool that efficiently removed common source ambiguity due to reconvergent fanout in digital circuits, while providing accurate glitch/spike reporting.

Diagnostic Engineer 1985-87

- Developed Diagnostic tests for the VAX 8800.
- Wrote Diagnostic Cache Specifications for a Vector and Scalar processor and designed test hardware for a Vector cache.

Gillette Company, *Boston, MA*

Information Research Analyst 1984-85

- Design and implementation of department automation.
- Evaluated and planned courses and seminars presented within the company.

Awards

- 2006- Boston University Outstanding Engineering Alumni Award, April 2006.
- 2006- Women at Work Museum, recognized for “Outstanding Contributions to Women in Engineering and Science”.
- 2006- Cape Ann Historical Museum, selected as a featured artist for Cape Ann Blossoms Exhibit, entitled piece: “Our Lady of Good Voyage”, May 20, 2006.

- 2006- IEEE North Atlantic Test Workshop, Recognition Award for contributions to the workshop. Burlington, VT. May 2006.
- 2004- Larz Anderson Museum of Transportation, “Alt Wheels” Conference. Winner Best Educational Exhibit for the Nerd Girls Project.
- 2003- Massachusetts High Tech Magazine, “All Star” award for contributions to technology in MA.
- 2003- The Madeline and Henry Fischer Award for Engineering Teacher of the Year, Tufts University.
- 2002- IEEE North Atlantic Test Workshop, Outstanding Contributions, May 2002.
- 2003- IEEE Micromouse Robotics Competition: advised the students for this competition. The team won second place in 2003, 2002, third place in 2001 and fourth place in 2000.
- 2001- International Test Conference: Outstanding Contributions, October 2001.
- 1999- Tufts University Mentorship/Research Award, with Terry Orfanos.
- 1998 – Outstanding Contributions to NASA Research 1998.
- 1998 - NASA Excellence in Research Award 1998.
- 1998 - NASA Curriculum Development Award for EE202: “Digital System Testing and Simulation”.
- 1998 – NASA Curriculum Development Award for the Tufts University Multimedia Minor.
- 1998 – NASA Best Team Poster Presentation, JOVE conference.
- 1998 – Outstanding Contributions to NASA Research
- 1997 - NASA Excellence in Research Award.
- 1997 - NASA Curriculum Development Award for “Animation for Technical Communications”.
- 1996 – NASA Langley Research Scientist Fellow.
- 1996 – Massachusetts Interactive Media Council (MIMC), third place for student CD-ROM project on African Drum music, “Gahu of the Ewe” in collaboration with the Music department.
- 1994 - Electrical Women Round Table, Julia Kiene Fellowship.
- 1993 - Digital Equipment Corporation Fellowship.
- 1992 - Digital Equipment Corporation Recognition Award for “Outstanding Research and Performance”.
- 1985 - Boston University Alumni Association Outstanding Senior Award.

Other Honors

- Ethan Danahy, Dr. Panetta’s Ph.D. Candidate is a recipient of the 2006 Graduate Student Research Award.
- Ethan Danahy, Dr. Panetta’s Ph.D. Candidate is a recipient of the 2004 Outstanding Graduate contributor to Engineering Education Award, 2004.
- Ethan Danahy, Graduate Research Fair, 3rd Place in October 2003 and 1st place in October 2001.

- Barry Goldwater Scholarship, Thomas Baran, now a Ph.D candidate at MIT for his research work in Digital Signal Processing with Dr. Panetta.
- 2004- IEEE national student paper competition, Thomas Bara, second place for his research with Dr. Panetta.
- 2004- IEEE national student paper competition, Marco Enriquez, third place for his research with Dr. Panetta.
- Terry Orfanos, received the Outstanding Graduate Research Assistant Award from the Graduate School of Arts and Sciences. 2001.
- IEEE Best Student Paper Competition, Daniel Keefe, now a Ph.D. candidate at Brown University for his collaborative work on Dr. Panetta's NASA Grant. 2002
- IEEE Silver Medal for the Tufts University IEEE Student Chapter web design.

Invited Talks:

- Clean Cities of Massachusetts, Executive Committee Meeting, "Renewable Energy Solar Systems on Thacher Island," January 30, 2007.
- The Massachusetts Conference for Women: Session: The Next Generation of Global Architects". December 14, 2006, Boston, MA.
- Society of Women Engineers, "Walks of Life Career Panel", December 12, 2006. Medford, MA
- Build Boston Conference, Women in Design, Session: Degrees of Connections, title: "Connecting Ideas with Actions and Inspiring Change." November 14, 2006, World Trade Center, Boston, MA.
- MACOM/ Tycoelectronics Professional Women's Network distinguished speaker seminar, title: "Running Through the Finish Line: Experiences from the Nerd Girl Engineering Project", November 10, 2006. Lowell, MA.
- Women at Work Museum, Defining the Decade Exhibit, title: Women in Transport: Visualizing Complex Data Sets from NASA Shuttle missions". November 4, 2006, Attleboro, MA.
- Women at Work Museum, Dream it! Design it! Exhibit, title: "Art, Engineering and Alternative Energy.", August 2, 2006, Attleboro, Ma.
- SolarNow Inc., Greenergy Park renewable energy fair, "Solar Energy Engineering", July 2006, Beverly, MA.
- Women at Work Museum, title: "The Nerd Girls: Breaking the Stigmas and Stereotypes of Women in Engineering and Science". June 13, 2006
- Rockport Public School, Girls and Technology, title: "Everyday Engineering", April 12, 2006. Medford, Ma.

- Peabody Public Schools, Welch Middle School, “Engineering for Everyone”, January 2006.
- Peabody Public Schools, West Middle School, “Visualization versus Animation”. January 2006.
- Clean Cities of Massachusetts, Department of Energy Resources: “Renewable Energy Designs for Thacher Island, February 2005. Boston, MA.
- Thacher Island Association, title: “Renewable Energy Engineering Solutions for Remote Environments”, April 2005. Rockport, MA.
- Sandwich Public Schools, title: “Renewable Energy and Engineering” .February 2005. Sandwich, MA.
- Woodward School for Girls, title: “Girls in Engineering”, January 2005, Quincy MA.
- Clean Cities: Department of Energy Resources: Keynote speaker, 2005
- NSF PSET Project, title: “Inventing the Binary Box for teaching Digital Communications”, March 2004.
- Rockport Educational Foundation, Keynote Speaker, title: “Visualization of NASA Data”, April 24 2004
- Massachusetts Guidance Symposium for Engineering and Engineering Technology Conference, November 10, 2005, Boston Museum of Science, Cambridge, MA.
- Tufts University First Year Scholars program
- Girls Inc., Smart Conference, Keynote Speaker, title: “Engineers, Ready to Take on any Feat!”, April 2003.
- Society of Women Engineers, Sports Engineering workshop for girls, May 2003.
- Malden Middle School Outreach Program: “What Engineers Do”, April 2004
- Somerville Middle School Outreach Program: “Animation for Engineering and Science”, July 19, 2002.
- Society of Women Engineers, title: “The Real World: Industry Perspectives on Engineering Careers”, April 5, 2002.
- American Society of Engineering Education and NASA: title: “NASA Joint Ventures for Engineering Education”. April 2003. Virginia.
- Association for Women in Computing, “Animation for Technical Communications”, April 25, 2002.
- Tufts University First Year Scholars Program, “Multimedia and Engineering”, July 17, 2002.
- Discovery Museum: “Girls Get Set!” program, “Engineers Changing the World!”, July 26, 2002.
- 1999 - National Science Foundation, “CAREER Awardees Workshop”, invited presenter.

- Society of Women engineers, keynote speaker, 1997
- Boston University, College of Engineering. Title: “Multilevel Concurrent Simulation”. 1998
- Syllabus Conference, July 1998. Title: “Adding Multimedia to the Curriculum: Issues and Approaches”.
- NASA JOVE Conference, Cocoa Beach Florida, Guest Speaker 1998.
- Eta Kappa Nu Induction Ceremony, Keynote Speaker. 1998
- University of Lowell, Electrical Engineering department. Title: “Stimulating Simulating”.
- Girls in Engineering NSF Summer Program, Keynote Speaker, 1997.
- Tufts University Sixth Annual Teaching Conference, Speaker and organizer Multimedia Workshop1997
- Tau Beta Pi Induction Ceremony, Keynote Speaker, 1995

PROGRAMMING SKILLS:

C, C++, PASCAL, FORTRAN, Visual Basic, BLISS, ADA, C-Shell, Bourne Shell, PERL, TCL, yacc, lex, VHDL, Verilog, Assembly for VAX, 21064, 68000, Intel 8085, Motorola HC11/HC12.

OPERATING SYSTEMS:

VMS, UNIX, MS DOS, Macintosh, Windows 3.xx, 95 NT, Solaris, SGI IRIX, X/Motif environments.

SOFTWARE:

IBM Data Explorer, Xilinx, Verilog, VHDL, Electric Image, Softimage, Adobe Photoshop, Adobe Premiere, Macromedia Director, Adobe Illustrator, MS Word, MS PowerPoint, MS Excel, MS Backoffice (SQL), Maya, Infini-D, Finale, Studio Vision, Lotus 1-2-3, SHARPE reliability modeling, SPICE, McCabe Structured Design and Testing tools, Mentor Graphics CASE analysis tool Suite.

PUBLICATIONS and PATENTS:

Patents

- Method For Testing, Debugging, and Comparing Computer Programs using Concurrent Simulation of Program Paths. Patent number 5291497. Issued 3/1/94
- A Method for Multi-Domain and Multi-Dimensional Concurrent Simulation Using a Digital Computer. Patent number 5307479. Issued 4/26/94
- “A Decoderless Demultiplexer for High Speed Circuits”, Karen Panetta, Suja Ramnath and Paul Schwab, (patent pending)
- A System and Method for Calculating Boolean Derivatives with Applications, Karen Panetta and Sos Agaian. submitted by Tufts University. Patent pending, 2007.

Journal Articles

- Blair Silver, Sos S. Agaian and Karen A. Panetta, "Contrast Entropy Based Image Enhancement and Logarithmic Transform Coefficient Histrogram Shifting", IEEE Journal of Image Processing 2007.

- Karen Panetta, Eric Wharton , and Sos Agaian, "Parameterization of Logarithmic Image Processing Models," IEEE Transactions on Systems, Man and Cybernetics- Part : Systems and Humans, submitted 2006.

- Karen Panetta, Eric Wharton , and Sos Agaian, "Human visual System Based Image Enhancement and Measure of Image Enhancement," IEEE transactions on Systems, Man and Cybernetics- Part : Systems and Humans, submitted 2006. , submitted 2006.

- Sos Agaian, Ethan Danahy and Karen A. Panetta, "Logical System Representation of Images and Removal of Impulse Noise," IEEE Transactions on Systems, Man and Cybernetics- Part A: Systems and Humans, submitted July 2006.

- Karen A. Panetta, Sos S. Agaian and Ethan E. Danahy, "Edge Detection for Digital Images via Partial Derivatives of Boolean Functions," IEEE Transactions on Image Processing", submitted.

- Sos Agaian, Karen Panetta and Atma Kanojia, "Transform contrast enhancement based Image Enhancement", EURASIP Journal on Applied signal Processing. Submitted.

- Karen Panetta, Charles Dornbush and Catherine Loomis, "A Collaborative Learning Methodology for Enhanced Comprehension Using TEAMTHINK", American Society of Engineering Education, April 2002, pp.223-229.

- S.S. Agaian, K. Panetta., and A.M. Grigoryan, "Transform Based Image Enhancement Algorithms with Performance Measure", IEEE Transaction on Image Processing, Volume 10, No.3.March, 2001, pp. 367-380.

- K. Panetta, E. Manolakos, and E. Czeck and J. Heller, "Multiple Experiment Environments for Testing". Journal of Electronic Testing: Theory and Applications (JETTA), Vol. 11, No. 3, pp. 247-262, December 1997.

- E. Ulrich, K. Panetta , J. Arabian, V. Agrawal and P. Montessoro, "The Comparative and Concurrent Simulation of Discrete-Event Experiments", Journal of Electronic Testing (JETTA), Volume 3, Number 2, May 1992, pages 17-23.

- S. Demba, E. Ulrich, K. Panetta and D. Giramma, "Experiences with Concurrent Fault Simulation of Diagnostic Programs, IEEE Transactions on Computer-Aided Design. Vol. 9, No. 6, June 1990, pages 621-628.

- K. Panetta, J. Heller and P. Montessoro, " System Verification Using Multilevel Concurrent Simulation", IEEE MICRO Vol. 19, No 1. Jan/Feb 1999.

- K. Assiter, K. Panetta, A. Couch and C. Currey, "Locating Anomalies in Large Data Sets", Society for Computer Simulation Military, Government and Aerospace Simulation, Vol. 30, no. 4, pages 218-223 April 5, 1998.

Refereed Conference and Workshop Publications

- Eric Wharton, Sos Agaian, and Karen Panetta, "A Logarithmic Measure of Image Enhancement", Proceedings SPIE Defense and Security Symposium 2006. vol. 6250, April 2006.

- Eric Wharton , Karen Panetta and Sos Agaian, “Human Visual System Based Image Enhancement,” IEEE International Conference on Acoustics, Speech and Signal Processing, Honolulu, Hawaii, April 2007. Accepted

- Yesna Yildez , Karen Panetta and Sos Agaian, “Hiding Information in Images with Immunity from Statistical Attacks”, SPIE Defense and Security, Orlando, Florida, April 2007. Accepted

- Ethan Danahy, Karen A. Panetta , and Sos S. Agaian, "Signal Compression via Coordinate Logic Transforms,” SPIE Defense and Security Symposium: Mobile Multimedia/Image Processing for Military and Security Applications, Accepted 2007.

- Ethan Danahy, Karen A. Panetta , and Sos S. Agaian, "Algorithms for the Resizing of Binary and Grayscale images Using a Logical Transform,” SPIE Electronic Imaging 2007. Accepted.

- Ethan Danahy, Karen A. Panetta , and Sos S. Agaian, "Detecting Edges in Noisy Environments,” IEEE International Symposium on Multimedia 2006. Accepted.

- Eric Wharton, Sos Agaian, and Karen Panetta, “Human Visual System based Image Enhancement,” SPIE Defense and Security Symposium 2007, Orlando, Florida. accepted.

- Eric Wharton, Sos Agaian, and Karen Panetta, “Adaptive Multi-Histogram Equalization using Human Vision Thresholding,” Accepted SPIE Electronic Imaging 2007, San Jose, January 2007.

- Eric Wharton, Sos Agaian, and Karen Panetta, “Restoration of Aging Images Using Morphological Filters for Archiving”, Proceedings: IS&T Archiving 2006, May 2006.

- Ethan Danahy, Karen A. Panetta , and Sos S. Agaian, “Directional edge detection using the logical transform for binary and grayscale images,” SPIE Defense and Security Symposium: Mobile Multimedia/Image Processing for Military and Security Applications, vol. 6250, April 2006.

- Eric Wharton, Sos Agaian, and Karen Panetta, "Comparative Study of Logarithmic Enhancement Algorithms with Performance Measure", Proceedings, SPIE Electronic Imaging 2006. January 2006.

- Ethan Danahy, Sos S. Agaian, and Karen A. Panetta, "Non-Linear Algorithms for Noise Removal from Medical Signals Using the Logical Transform", Proceedings: Mathematical Methods in Pattern and Image Analysis, SPIE Optics and Photonics 2005, Vol 5916. August 2005.

- Blair Silver, Sos S. Agaian, and Karen A. Panetta, "Logarithmic Transform Coefficient Histogram Matching with Spatial Equalization", Proceedings: Visual Information Processing XIV, SPIE Defense and Security Symposium 2005, Vol 5817. March 2005. pg 237-249

- Ethan Danahy, Sos S. Agaian, and Karen A. Panetta, "Filtering of Impulse Noise in Digital Signals Using Logical Transform", Proceedings: Visual Information Processing XIV, SPIE Defense and Security Symposium 2005, Vol 5817. March 2005. pg 188-199

- Blair Silver, Sos S. Agaian and Karen A. Panetta, "Contrast Entropy Based Image Enhancement and Logarithmic Transform Coefficient Histrogram Shifting", Proceedings, IEEE ICASSP 2005. March 2005

- Sos S. Agaian, Thomas A. Baran and Karen A. Panetta, "The Application of Logical Transforms to Lossless Image Compression Using Boolean Minimization", Proceedings, GSPx and International Signal Processing Conference, 13-31 March 2003.

- Sos S. Agaian, Thomas A. Baran and Karen A. Panetta, “Transform-Based Image Compression by Noise Reduction and Spatial Modification Using Boolean Minimization,” Proceedings, IEEE 2003 Workshop on Statistical Signal Processing, paper 249, Oct. 2003.

- S. Agaian, T. Baran and K. Panetta, “The Application of Logical Transforms to Lossless Image Compression using Boolean Minimization.”, Proceedings, GSPx and International Signal Processing Conference, (ISPC), paper 449, March 2003.

- E. Weststrate and K. Panetta, "Efficient Concurrent Simulation Large Networks Using Various Fault Models ", Advanced Simulation Technologies Conference, The 34th Annual Simulation Symposium, pages 51-55, April 2001.

- K. Panetta and J. Heller, "Simulation Techniques for Modeling Large System Designs”, Proceedings of the World Multi-conference on Systemics, Cybernetics and Informatics (SCI 2000), Vol. VIII, pages 300-305, July 2000.

- K. Panetta and J. Homer, "Handling Behavioral Components in Multilevel Concurrent Fault Simulation", Advanced Simulation Technologies Conference, The 33rd Annual Simulation Symposium, pages 149-151, April 2000.

- J. Heller and K. Panetta, "TUFTsim: A Multiple Domain Simulator for Experimentation”, The 32nd Annual Simulation Symposium, pages 44-49, May 1999.

- J. Heller and K. Panetta, "A Modular and Extensible Concurrent Fault Simulator", IEEE North Atlantic Test Workshop, pages 6-11, May 1998.

- K. Panetta, J. Heller and P. Montessoro, "Multi-Level Concurrent Simulation: An Extensible Architectural Environment", IEEE Workshop on Embedded Fault Tolerant Systems (EFTS98), pages 136-142, May 22, 1998.

- K. Panetta, J. Heller and P. Montessoro, "Multi-Level Concurrent Simulation", Proceedings the 31st Annual Simulation Symposium, pages 42-47, April 5, 1998.

- R. Kogan, S. Agaian, K. Panetta, “Visualization Using Rational Morphology and Zonal Magnitude Reduction”, Proceedings of the International Society for Optical Engineering (SPIE), Nonlinear Image Processing IX, pages 153-163, San Jose California, January 26, 1998.

- K. Panetta, E. Manolakos, and E. Czeck, “A Multiple Domain Environment for Efficient Simulation”, 1997 Simulation MultiConference: 30th Annual Simulation Symposium, pages 76-85, April 6-10, 1997.

- K. Panetta, E. Manolakos, and E. Czeck, "Compressing Large Simulations Using Multiple Domain Concurrent and Comparative Simulation", IEEE North Atlantic Test Workshop, May 1996.

- K. Panetta, E. Manolakos, and E. Czeck "On the Simulation of Multiple Stuck-at Faults using Multiple Domain Concurrent and Comparative Simulation", IEEE 1995 Asian Test Conference, Bangalore, India, pages 86-92, November 1995.

- K. Panetta and E. Ulrich, "Multiple-Domain Concurrent and Comparative Simulation", IEEE European Test Conference, pages 301-310, April 1993.

- P. Montessoro, K. Panetta and E. Ulrich, "Comparative Simulation Techniques Using Concurrent Simulation", ACM Proceedings Association for Italian Computer Automation (A.I.C.A.), October 1992.

- E. Ulrich, K. Panetta, S. Demba and R. Razdan, "Concurrent Min-Max Simulation Techniques", European Computer Aided Design Conference, pages 554-557, January 1991.

- S. Demba, E. Ulrich, K Panetta and D. Giramma, "Experiences with Concurrent Fault Simulation of Diagnostic Programs", International Test Conference, pages 877-883, Sept. 1988.

- E. Weststrate, K. Panetta, "Multiple Fault Models for Concurrent Simulation", IEEE Embedded Fault Tolerant Workshop, September 2000.

- Sos S. Agaian, K. Panetta and Artyom M. Grigoryan, "A New Measure of Image Enhancement", IASTED International Conference on Signal Processing and Communications, September 19-22, 2000, Marbella, Spain.

Book Chapters

- Contributor to the book, by Parag Lala

- Handbook of Communications, CRC press
-
- Contributor to the book, "The Handbook of Multimedia Computing", Co-author of Chapter 13: Edited by Dr. Furht, CRC Press, May 1998.

- Contributor to the book, "Concurrent and Comparative Discrete-Event Simulation", by E. Ulrich, J. Arabian and V. Agrawal. Kluwer Academic Publishers, December 1993.

Media and Educational Publications:

- Co-author of the 417 page NSF book, "How to Grow a STEM Team" and "STEM Team Partnership" Video, NSF Four Schools for Engineering Project. www.stemteams.org.

- K. Panetta, "Running through the Finish Line: Attracting and Retaining Women in Engineering", submitted IEEE Journal of Education, 2007.

- K. Panetta, "What's In a Name? Experiences from the Nerd Girl Project", submitted ASEE Prism Magazine, 2006.

- K. Panetta, "Multimedia as a Method for Technical Communications", ASEE 1996 Conference Proceedings, April 26, 1996.

- K. Panetta, Bringing Industry Experience into the Classroom: The Real World Perspective, ASEE 1995 Conference Proceedings, April 28, 1995.

- K. Panetta, "Multimedia on Campus: New Multimedia Lab at Tufts University", Professional Journal of the Special interest Group on CD Applications and Technology (SIGCAT), vol. 10, no.5, 1996.

Poster Presentations

- S. Agaian, R. Kogan and K. Panetta, "Visualization using Rational Morphology", AeroSense, SPIE 12th Annual International Symposium on Aerospace/Defense Sensing, Simulation and Controls, pages 3387-37, April 1998.
- E. Silva, K. Panetta and Sos Agaian, "Human Visual Measures for Similarity in Images", IEEE 2007.

<u>Funded Grants:</u>

Grants over $20,000.00

- *2007* National Science Foundation " Stimulating Simulating", pending
- *2004-2007* National Science Foundation, "A Unified Simulation and Fault Modeling Environment for Mixed Signal Systems Including MEMS Components". PI, $350,000.00.
- *2004* Sun Microsystems, "Simulation Laboratory Infrastructure", $80,000.00

- 2003- Nerd Girls: Breaking the Stigmas and Stereotypes of Women in Engineering and Science, Massachusetts Technology Collaborative, $35,000.00, September 2003.
- 2002- Nerd Girls: Breaking the Stigmas and Stereotypes of Women in Engineering and Science, Tyco Electronics Inc., $25,000.
- 2004- National Science Foundation, "Four Schools for Women in Engineering," Senior Staff.
- Intellectual Partnership for simulating the ALPHA 21064 RISC Architecture, National Science Foundation Industrial Matching with Compaq Computer, $25,000.00, August 2000.
- 2000 - Teradyne Inc., Support for Simulation Laboratory, Co-PI with Dr. Denis Fermental, $26,000.00, March 2000.
- 2000- National Semi-Conductor, Support for Electronics Laboratory, $100,000.00.
- 2000 - Teradyne Inc., Support for Simulation Laboratory, Co-PI with Dr. Denis Fermental, $26,000.00, March 2000.
- 1999- National Science Foundation Intranet-II, $500,000.00, Wilson Dilloway, Ioannis Miaoulis,
- 1999 – Selmer/ Steinway Networked Database, Co-PI with Dr. Alva Couch $24,000.00, Feb. 1999.
- 1999- Mellon Research Grant, Tufts University, Sept. 1999.
- 1997 – National Science Foundation, CAREER Award. "Robust Behavioral Fault Simulation Algorithms for Multilevel Simulation". MIP-9733584 PI, $250,000.00.
- 1997 – Viacom Multimedia grant, Co-PI, with Dr. Alva Couch and Dr. Ioannis Miaoulis, $40,000.00.
- 1996 - NASA JOVE (NASA/ Joint University Venture) Grant PI, $186,000.00.
- 1996- Beveridge Foundation, Co-PI, with Dr. Alva Couch, Dr. Ioannis Miaoulis, $75,000.00.
- 1991 – Digital Equipment Corporation Research And Development, PI, $500,000.00.

Grants under $20,000.00

- 2006- National Science Foundation Research Experiences for Undergraduates, PI, $10,000.00, July 2006.
- 2006- Altera Corporation, Simulation Laboratory Support, PI, $15,000.00
- 2005- National Science Foundation Research Experiences for Undergraduates, PI, $10,000.00, July 2005.
- 2004- National Science Foundation Research Experiences for Undergraduates, PI, $10,000.00, July 2004.
- 2000 - National Science Foundation Research Experiences for Undergraduates, PI, $10,000.00, July 2000.
- 2000 - National Science Foundation, Travel Grant, PI, $10,000.
- 1999 - National Science Foundation Research Experiences for Undergraduates, PI, $10,000.00 May 1999.

- 1999 - National Science Foundation Equipment Grant, PI, $20,000, March 1999.
- 1999 - National Semi-Conductor, PI, $10,000. January 1999.
- 1998 - National Science Foundation Research Experiences for Undergraduates, PI, $10,000, March 1998.
- 1998 - National Science Foundation Computing Research Association student support grant, PI $10,000.00 Feb. 1998.
- 1998 - Microtouch Corporation, Equipment grant, touch screen monitor, PI, $2885.00, February 1998.
- 1998 – General Scanning Inc., Equipment grant, thermal printer, PI, $2300.00, June 1998.
- 1997 – Selmer/ Steinway proposal for multimedia, Co-PI with Dr. Alva Couch $11,000.00, Oct. 1997.
- 1997 – Digital/INTEL equipment grant, PI, 4 machines @4k=$16,000.00, October 1997.
- 1997 – Tufts University, FRAC, Co-PI, with Dr. David Locke, " Music and Media", $2000.00
- 1996 – National Science Foundation, National Science Foundation, Planning Grant Award.

  "Compression and Interaction Algorithms for Modeling and Simulation Envrionments".

  MIP-9528194, PI, $18,000.00.
- 1996 – Tufts University, FRAC, "Interactive Media Environments for Occupational Therapy", $2200.00, March 1996.
- 1995 – Massachusetts Cultural Council (MCC), FY96-EP-MED-0795, "Multimedia in the Classroom", $3000.00, August 1995.
- 1995- Gloucester Cultural Council (GCC), "Multimedia in the Classroom Training", $300.00.
- 1994 – Tufts University, Summer School Development Fund, "Computer Animation for Technical Communications", $2500.00, December 1994.

ACTIVITIES:

- Senior member IEEE
- IEEE Computer Society member
- IEEE Signal Processing Society member
- IEEE Women in Engineering member
- IEEE Systems, Man and Cybernetics Society member
- Senior Member Society for Computer Simulation
- Senior member of the Society of Women Engineers
- Boston University Engineering alumni Board member.
- Society of Professional Hispanic Engineers, member.

- Massachusetts Clean Cities, member.
- ACM SIGGRAPH, member.
- ASEE (American Society of Engineering Education), member.
- Eta Kappa Nu engineering honor society.
- Tau Beta Pi honor society, member.
- Advisor for student Chapter of the IEEE.
- Advisor for the student Chapter of the Society of Women Engineers.
- Test Technology Technical Committee, member.

Professional Activities:

- Editor of the upcoming Journal, International Journal of Reliable Electronic System Design, International Press.
- 2007- IEEE Homeland Security Technology Committee, program committee
- 2007- IEEE Women in Engineering Director
- 2006-1999 IEEE North Atlantic Test Workshop, Steering Committee Member
- 2006-1997 IEEE North Atlantic Test Workshop, Session Chair
- 2007- IEEE Educational Society Chair, Central New England Council
- 2007- IEEE Boston Section, Executive Board member, Member-at-Large
- 2007- IEEE Boston Section, Executive Board, Student Activities Chair.
- 2007- IEEE Systems, Man, and Cybernetics Society, founding member of the IEEE Technical Committee on Information Assurance, Multimedia & Mobile Intelligent Systems.
- Reviewer for Software and Hardware Engineering, by Frederick Cady and James Sibigrtoth, Oxford University Press. 2006
- Reviewer for Microcontrollers: Motorola MC68HC12**,** Oxford University Press. 2006
- Reviewer for Digital Logic and Applications, by Parag Lala, Prentice-Hall Publishers 2006.
- Reviewer for The Handbook of Information Security, Data Compression, John Wiley & Sons, Inc. 2006.
- Reviewer for The Handbook of Information Security, Video Imaging Techniques, John Wiley & Sons, Inc. 2006.
- Reviewer for National Science Foundation of Ireland.
- Reviewer for IEEE Computer
- Reviewer for IEEE Embedded Fault Tolerant Systems Workshop.
- Reviewer for middle school text books, “Electricity” and “Electromagnetism”, by Ioannis Miaoulis and Martha Cyr., Pearson Education Publishers.

- 2004- Chair for the IEEE Education Society, Central New England Council.
- 2003- Vice Chair for the IEEE Educational Society, Central New England Council.
- Reviewer for " Structured Computer Organization", by Andrew Tannenbaum, fourth edition, Prentice Hall Publishers.
- Reviewer for "Operating Systems", by William Stallings, fourth edition, Prentice Hall Publishers.
- Reviewer for the IEEE Transactions on VLSI.
- Reviewer for the IEEE Transactions on Computers.
- Reviewer for the IEEE Transactions on Image Processing.
- Reviewer for Kluwer Academic Science Mathematics Series Journal.
- Reviewer for the IEEE Transactions on Signals and Systems
- Program Committee member for the IEEE Networked Computing Conference (NCA)
- NSF CISE Design Automation Panel reviewer.
- NASA/ASEE (American Society of Engineering Education) Committee that developed a new joint grant initiative to replace the NASA/ASEE Summer Faculty Program.
- 2000- Program Committee member, CNDS conference (Communication Networks and Distributed Systems Modeling and Simulation Conference).
- 2000- Program Committee for the IEEE Embedded Fault Tolerant Workshop.
- 2000- Panel Coordinator for MEMS (micro-electromechanical systems), International Test Conference.
- 2003-2005 Session Chair for IEEE International Test Conference.
- 2000- 2005 Program Committee member IEEE International Test Conference.
- 2000- 2003 Topic Coordinator for the "Path Delay Fault Test" session of the International Test Conference.
- 2000- General Chair, IEEE North Atlantic Test Workshop, Gloucester, Ma, May 25, 26, 2000.
- 2001- Proposed, organized and served as session chair of the ASEE NSF Visiting Scholar Lecture Workshop. Dr. Susan Ambrose, the Associate Provost of Carnigie Mellon University was the invited speaker.
- Women in Technology Seminar Series, I chaired a session.
- 1996-1998, Judge of the Society for Technical Communications International Video Competition.
- 1999 Vice General Chair: IEEE North Atlantic Test Workshop, University of Rhode Island, May 1999.
- 1998 Society for Computer Simulation 31st Simulation Symposium**.**
- 2000 Session Chair, Society for Computer Simulation 32nd Simulation Symposium.

- 1999 Session Chair, Society for Computer Simulation 33rd Simulation Symposium.
- 1999 Program Chair Simulation Symposium, San Diego, California, 1999.
- 1998 NSF Grant Proposal reviewer: SBIR and Circuit simulation proposals.
- 1998 -2004 Liaison between the Society for Computer Simulation (SCS) and the Advanced Simulation Technologies Conference.

- 1997 and 1998 Program Chairman: IEEE North Atlantic Test Workshop, University of Rhode Island.
- 1996 Reviewer for the IEEE International Conference on VLSI Design.

Community Service:

- Women at Work Museum, Planning Board for the museum's new building.
- Boston High School Science Fair Judge
- Education committee for the Gloucester, MA, historic Schooner, "Adventure"
- Member and corresponding secretary of the Gloucester Garden Club
- Volunteer for Nursing Homes conducting flower arrangement activities with residents.
- Member of the Friends of the Cape Ann Symphony
- Presented over 50 talks to k-12 students to promote engineering and science careers.
- Hostess for the Topsfield Fair, Flower Building, Topsfield, MA.