

Randal T. Abler
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I. EARNED DEGREES

PhD, Georgia Institute of Technology,
School of Electrical and Computer Engineering, 2000

MSEE, Georgia Institute of Technology, School of Electrical Engineering, 1992

BEE, Georgia Institute of Technology, School of Electrical Engineering, 1986

II. EMPLOYMENT

April 2007 – present Georgia Institute of Technology, Assistant Professor,
and Associate Director of the Arbutus Center for Distributed Engineering Education

Nov. 2000 – present Georgia Institute of Technology, Assistant Professor,
School of Electrical and Computer Engineering, Georgia Tech Savannah Campus

1997 – Nov. 2000 Georgia Institute of Technology, Research Engineer II

1987-1997 Georgia Institute of Technology, Research Engineer I

III. TEACHING

A. Individual Student Guidance

1. PhD Students Graduated

- 1) Ana Goulart (ECE), PhD defense and graduation Spring 2005, “Signaling Architectures for the Interaction of the Session Initiation Protocol and Quality of Service for Internet Multimedia Applications”, Assistant Professor of Engineering Technology and Industrial Distribution at Texas A&M University beginning fall 2006.
- 2) Sita Krishnakumar (ECE), PhD defended May 2008, “Intelligent Actor Mobility in Wireless Sensor and Actor Networks”, graduation Aug, 2008.

2. PhD Students Supervised

- 1) Lane Thames (ECE), Internet Security, admitted under funded GRA for summer 2004, PhD preliminary exam passed fall 2005, PhD proposal expected spring 2008

B. Other Teaching Activities

Emphasis on developing and teaching GT-Savannah based implementations of senior level ECE courses which include a working laboratory component, including ECE 4110

“Internetwork Programming”, ECE 4175 “Embedded Microcontroller Design”, and ECE 4006 “Major Design Project” and ECE 4180 “Embedded Systems Design”.

New graduate course: “IP Networking Systems” taught Spring 2003. This course addresses the system level issues in design of large IP networks, as compared to specific queuing, and link layer technologies covered in other courses. Focus is on recently developed system level techniques.

IV. SCHOLARLY ACCOMPLISHMENTS

B. Refereed Publications

1. Refereed Journal Publications

- 1) M.B. Woods, C.O Alford, R.M Pitts, P.R. Bingham, R.T. Ablner, and S.R. Wachtel, “Digital Emulation Technology Laboratory: A facility for real-time KEW simulation and testing”, *Transactions of the Society for Computer Simulation*, vol. 10, no. 2, pp 72-102, June 1993.
- 2) J. Copeland, R. Ablner, and K. Bernhardt, “IP flow identification for IP traffic carried over switched networks”, *Computer Networks and ISDN Systems*, 2096 (1998).
- 3) S.H. Jeong, M. Choi, R. Ablner, H. Owen, J.A. Copeland and J. Sokol, “QoS Support for Real-Time Applications Using the Integration of RSVP/IntServ and DiffServ”, *IFIP-TC6IEU Networking 2000*, May 2000.
- 4) S.-E. Jeon, R.T. Ablner, J.A. Copeland and Y. Pan, “Path Selection with Class Distribution Information in the Integrated Network”, *IEEE Communications Letters*, vol 6, no. 2, February 2002.
- 5) R. Ablner, H. Owen and G. Riley, “University Methodology for Internetworking Principles and Design Projects”, *IEEE Transactions on Education*, vol. 46, no. 2, pp. 218-225, May 2003.
- 6) S.-E. Jeon and R. Ablner, “Formulation and Optimization of the connection Preemption Problem”, *Computer Communications*, vol. 27, no. 3, pp. 253-261, Feb 2004.
- 7) A. Goulart and R. Ablner, “On Overlapping Resource Management and Call Setup Signaling: a New Signaling Approach for Internet Multimedia Applications”, *Computer Communications*, vol. 28, no. 8, pp. 851-863, May 2005.
- 8) R. Ablner and I. Wells, “Distributed Engineering Education: Evolution of the Telecollaboration Station for Individualized Distance Learning”, *IEEE Transactions on Education*, vol. 48, no. 3, pp. 490-496, Aug 2005.
- 9) R. T. Ablner, D. Contis, J. Grizzard and H. Owen, “Georgia Tech ‘Hands On’ Network Security Laboratory”, *IEEE Transactions on Education*, vol. 49, no. 1, pp. 82-87, Feb 2006.

2. Refereed Conference Proceedings

- 1) C.O. Alford, R.T. Ablner, W.S. Tan and A.H. Register, “Hardware-in-the-loop testing of KEW processors”, *Proceedings of the 1990 Summer SCS Missile Simulation Conference*, pp. 938-943 (July 16-18, 1990).
- 2) S. Wang, H. Zheng, R. Ablner, and J.A. Copeland, “High-quality videoconferencing over an ATM network”, *Conf on Implementation Management, and Provisioning of Videoconferencing*, pp 65-78, May 1998.

- 3) R. Abler and G. Wells, "Supporting H.323 video and voice in an enterprise network", *1st Conference on Network Administration*, Proceedings, pp 23-30 April 1999.
- 4) M. Arpaci, R. Abler and J.A. Copeland, "Improving the marking probability of RED", *Proceedings of the Applied Telecommunication Symposium (ATS'00)*, pp 55-60, April 2000.
- 5) S.-E. Jeon, R. Abler and A. Goulart, "The Optimal Connection Preemption Algorithm in a Multi-Class Network", *Proceedings of the IEEE ICC2002 Conference*, New York, May 2002.
- 6) N. Athanasiades, R. Abler, J. Levine, H. Owen and G. Riley, "Intrusion Detection Testing and Benchmarking Methodologies", *IEEE Information Assurance Workshop*, pp. 63-72, Darmstadt, Germany, March 2003.
- 7) A. Goulart and R. Abler, "Session Initiation Protocol (SIP) and Quality of Service (QoS) Interaction for Internet Multimedia Applications" (awarded "best paper of session"), *CCCT 2003*, pt. 2, vol. 2, pp 393-398, Orlando, FL, August 2003.
- 8) R. Abler and I. G. Wells, "Issues and Architecture for a Distributed Education Campus", *LASTED KSCE 2004*, U.S. V.I., November 2004.
- 9) A. Goulart and R. Abler, "On the interaction of SIP and admission control: an inter-domain call authorization model for Internet multimedia applications", *IEEE International Workshop on IP Operations and Management (IEEE IPOM 2005)*, October 2005.
- 10) J. L. Thames, R. Abler, and A. Saad, "Hybrid Intelligent Systems for Network Security", *44th ACM Southeast Conference*, Orlando, FL, March 2006.
- 11) R. Abler and I. G. Wells, "Work in Progress: Rapid and Inexpensive Archiving of Classroom Lectures", *2006 Frontiers in Education Conference*, San Diego, CA, October 2006.
- 12) J. L. Thames and R. Abler, "Implementing Distributed Internet Security using a Firewall Collaboration Framework", *IEEE Southeast Conference 2007*, Richmond, VA, March 2007.
- 13) S. Krisnakumar and R. Abler, "Intelligent Actor Mobility in Wireless Sensor and Actor Networks", *First IFIP International Conference on Wireless Sensor and Actor Networks (WSAN 2007)*, Albacete, Spain, September 2007
- 14) J. L. Thames, R. Abler, and D. Keeling, "A Distributed Active Response Architecture for Preventing SSH Dictionary Attacks", *IEEE SoutheastCon 2008*, Huntsville, AL, March 2008, accepted January 2008.
- 15) J. L. Thames, R. Abler, and D. Keeling, "A Distributed Firewall and Active Response Architecture Providing Preemptive Protection", *ACMSE 2008*, Auburn, AL, March 2008, accepted February 2008.
- 16) J. L. Thames, R. Abler, and E. Moore, "Mentoring Undergraduate Students Preparing for Graduate Study in Engineering – A CREATE Case Study", *2008 Frontiers in Education*, Saratoga Springs, NY, October 2008, abstract accepted February 2008.
- 17) R. Abler, J. Jackson, and S. Brennan, "High Definition Video Support for Natural Interaction through Distance Learning", *2008 Frontiers in Education*, Saratoga Springs, NY, October 2008, abstract accepted February 2008.

- 18) J. L. Thames and R. Abler, "Using the Open Source Software Model as a Tool for Teaching Engineers the Skills Needed in the Global Workplace", *2008 Frontiers in Education*, Saratoga Springs, NY, October 2008, abstract accepted February 2008.

D. Presentations

- 1) Invited Presentation: "Management Issues with Virtual LANs", 1995 Spring Interop Convention, Las Vegas.
- 2) Invited Presentation: "Experiences in Early ATM Networks", 1995 Spring Interop Conference, Las Vegas.
- 3) Invited Presentation: "Yamacraw Research at GTREP", 2001 Yamacraw Days session at Armstrong Atlantic State University.
- 4) "Networking Research at GT Savannah", April 2004, ECE Advisory Board.
- 5) "Georgia Tech Savannah", presentation and campus tour for IEEE Frontiers in Education Conference participants, October 2004.
- 6) "Issues in Deploying Advance Internet Technologies", November 2005, Seminar at Skidaway Institute of Oceanography.
- 7) "High Resolution Classroom Deployment", June 15, 2007 presentation and budget proposal to the University System of Georgia Chancellor demonstrating the need for improved distance learning, and request of \$7.7 million to upgrade the Georgia Tech Savannah related distance learning facilities.
- 8) "High Resolution Classroom Deployment", October, 2007 presentation and budget proposal to the University System of Georgia Board of Regents demonstrating the need for improved distance learning, and request of \$7.7 million to upgrade the Georgia Tech Savannah related distance learning facilities.
- 9) "High Resolution Classroom Deployment", Presentation and panel for the Electrical and Computer Engineering Department Heads Association (ECEDHA), San Diego, Ca, March 2008

V. SERVICE

A. Professional Contributions

Reviewed Book: "MPLS: Implementing the Technology", by Eric Gray, 2001, Addison-Wesley

Senior Member, Institute of Electrical and Electronics Engineers (IEEE), 2005 - present.

Program Committee member (reviewer) for 7th *LASTED International Conference on "Internet and Multimedia Systems and Applications"*, IMSA-2003

Reviewer, *Computer Networks: The International Journal of Computer and Telecommunications Networking*, Elsevier, 2006 - present

B. Campus Contributions

Arbutus Chair search committee member, summer 2006-spring 2007

GT-Savannah Graduate Recruitment Task Force, Fall 2005

GT-Savannah/Skidaway Coastal Engineering Taskforce, Fall 2005 – Spring 2006

School of Electrical and Computer Engineering Undergraduate Curriculum Committee, Fall 2005- present

GTREP Coordinator, Information Technology and System Support 2001-2003

Presentation on “Computer Engineering” at Introduction to Engineering Class, Armstrong Atlantic State University, Fall 2000

Ph.D./M.S. Committee Service

Name	Degree	Proposal Committee	Reading Committee	Thesis Defense Committee
Vasos Vassiliou	Ph.D	Fall 2001	Summer 2002	Summer 2002
Antony Fornaro	M.S	Fall 2002	Spring 2003	N/A
John Levine	PhD	Spring 2003		Spring 2004
Ali E. Ertan	PhD	Summer 2003		Fall 2003
Ana Goulart	PhD	Summer 2003	Spring 2005	Spring 2005
Brian Rivera	PhD	Summer 2004	Spring 2007	Spring 2007
Rishi Ranjan	M.S	Fall 2003	Spring 2004	N/A
H. Altunbasak	PhD	Fall 2004	Fall 2006	Fall 2006
J. Rojanarowan	PhD	Fall 2004	Summer 2005	Fall 2005
Sven Krasser	PhD		Spring 2004	Summer 2004
Yu-Xi Lim	M.S.	Fall 2005	Fall 2005	N/A
Sita Krishnakumar	PhD	Spring 2007		
Yu-Xi Lim	PhD	Spring 2008		
Kevin Fairbanks	PhD	Spring 2008		

C. Other Contributions

Consultant for redesign of Skidaway Institute of Oceanography’s Information Technology Infrastructure (Sept 2004 - August 2006)

VI. GRANTS AND CONTRACTS

A. AS PRINCIPAL INVESTIGATOR OR CO-PRINCIPAL INVESTIGATOR

- 1) PI: NSF CI-TEAM: Randal Abler, Yves Berthelot(GTL), Ed Coyle(ECE), Steve McLaughlin(ECE), Julia Melkers(Public Policy), Amy Pritchett, "Using High Definition Communication to Build and Teach Collaboration in Education and the Engineering Workforce", \$906,000 Georgia Tech, plus \$94,000 Purdue collaboration, selected as institutional proposal (one per institution) to NSF, submitted Aug. 2007.
- 2) Co-PI: GT/COE, Leadership in Undergraduate Engineering Education (LUEE) Phase II, “Sustainable, Scaleable, Widespread Improvements to Engineering Education”, Amy Pritchett (PI), Randal Abler, Nelson Baker, Donna Lewellyn, Wendy Newstetter, \$60,000 total, \$35,000 allocation.
- 3) Co-PI: GT/COE, LUEE Phase 1, “Coherent Design of Engineering Education”, Amy Pritchett (PI), Randal Abler, Tom Barnwell, Nelson Baker, Donna Lewellyn, Wendy Newstetter, GT/COE, \$50,000 for Spring 2007, allocation: \$5,000 direct + \$10,000 Arbutus Center.

- 4) Co-PI: NSF “Network Security Vulnerability via Large Scale Simulation”, George Riley (PI), Randal Abler, Henry Owen, 9/15/03 – 8/31/06, \$309,000 total, \$111,000 allocation.
- 5) Co-PI: “Real-time wave and current measurements at Tybee Island, GA.”, Subcontract to Skidaway Institute of Oceanography as part of the ONR SEA-COOS program, 9/1/03-8/31/05, \$190,000 (PI: Paul Work, Civil and Environmental Engineering) (unallocated).
- 6) PI: Ga. Electronic Design Center, FY 2004, \$42,400.
- 7) PI: Yamacraw, “IP MPLS for optical networks”, FY 2003, \$64,000.
- 8) PI: Yamacraw, “IP MPLS for optical networks”, FY 2002, \$65,000.
- 9) PI: Yamacraw, “IP MPLS for optical networks”, FY 2001, \$62,000.
- 10) PI: NSF “The Olympics MPEG-II traffic library”, R. Abler, R. Hutchins, A. Mukerjee, 1996, \$44,261.
- 11) Sun Microsystems “MINDPRINT” Matching Grant, Sun Grant number GATech/Abler/430989-A, with Ashraf Saad, 2001, value \$27,254.
- 12) Sun Microsystems “MINDPRINT” Matching Grant, Sun Grant number GATech/Abler/T-US-12862-A, 2001, value \$16,034.
- 13) Cabletron Grant, “IP Multicast & Layer 3 switching”, 1997, \$30,000.
- 14) Newbridge Networks Grant, “ATM data network testing & analysis”, 1995, \$30,000.

B. AS INVESTIGATOR

- 1) State of Georgia Department of Administrative Services: “IP Telephony”, and “Video Strategy” (Keith Bernhardt, PI) 1998-2001, \$1,500,000. (unallocated).

VII. AWARDS AND HONORS

- 1) Georgia Tech “Class of 1934 Outstanding Innovative Use of Education Technology Award” and \$7,500 honorarium (April 2005)
- 2) Adjunct Faculty, Skidaway Institute of Oceanography, Nov. 2005