

MICHAEL DEVETSIKIOTIS

PROFESSOR AND CHAIR

A. BRIEF RESUME.

1. Education background: (INSTRUCTION: LIST DEGREE, DISCIPLINE, DATE EARNED, INSTITUTION, AND STATE OR COUNTRY IN CHRONOLOGICAL ORDER, ONE DEGREE PER LINE)

Ph.D. in Electrical Engineering, North Carolina State University, NC - 1993
M.S. in Electrical Engineering, North Carolina State University, NC - 1990
Dipl. Ing. in Electrical Engineering, Aristotle University of Thessaloniki, Greece – 1988

2. Professional experience: (INSTRUCTION: LIST TITLE, DATES OF EMPLOYMENT, ORGANIZATION, DEPARTMENT, AND STATE OR COUNTRY IN CHRONOLOGICAL ORDER, ONE POSITION PER LINE)

Department Chair and Professor, ECE Department, The University of New Mexico, July 2016 – present.
Director of Graduate Programs, ECE Department, NC State University, January 2011 – May 2016.
Professor, ECE Department, NC State University, July 2006 — June 2016.
Associate Professor, Oct. 2000 – June 2006, Electrical and Computer Eng., NC State University, Raleigh, NC
Associate Professor, July 1998 – Dec. 2000, Systems and Computer Eng., Carleton University, Canada
Assistant Professor, Sept. 1996 – June 1998, SCE Dept., Carleton University, Canada
Research Associate/Adjunct Professor, July 1995 – Aug. 1996, SCE Dept., Carleton University, Canada
Postdoctoral Fellow, Oct. 1993 – June 1995, Systems and Computer Eng., Carleton University, Canada

3. Scholarly and creative activities: (INSTRUCTION: ADD/DELETE ACTIVITY TYPES TO THE LIST BELOW AS APPLICABLE; USE THE TAB KEY TO ADD ADDITIONAL ROWS; [ACTIVITY TYPE EXAMPLES](#))

<i>Type</i>	<i>Number</i>
Refereed Journal Articles	40
Submitted/Pending Journals	3
Refereed Conference Papers	129
Submitted/Pending Conferences	3
Standards Contributions	2
Non-Refereed/Invited Presentations	61
Book Chapters	5

4. Membership in professional organizations: (LIST ONE ORGANIZATION PER LINE, INCLUDE MEMBERSHIP DATES)

IEEE (F 2012, SM 2003, M 1994, S 1985) Communications Society, 1985 – present
ASEE, American Society for Engineering Education, 2003 –
ECEDHA, ECE Department Heads Association, 2016 –
INFORMS (Telecommunications Section), 2002 –
Honor Society Sigma Xi, 1991 – present; Honor Society Eta Kappa Nu, 1990 –
Honor Society Phi Kappa Phi, 1992 –

5. Scholarly and professional honors: (INSTRUCTION: LIST ONE HONOR PER LINE, INCLUDE DATE HONOR AWARDED)

Best paper award, IEEE SmartGridComm 2012
Best paper award for 2010, IEEE ComSoc Technical Committee on Com. Systems Integration and Modeling.
IEEE Communications Society Distinguished Lecturer, 2008 – 2011 (renewed for second two-year term in 2010)
Best Paper Award, QRPM Symposium, IEEE Globecom 2009, Dec. 2009, Honolulu
Best Student Paper Award, QRPM Symposium, IEEE Globecom 2007, Dec. 2007, Washington, DC.
Best paper award, 41st Annual Simulation Symposium, April 2008, Ottawa, Canada.
OPNET Modeling Excellence Award, 1996.
Phi Kappa Phi Academic Achievement Award, NC State, 1993.
Scholarship, National Scholarship Foundation of Greece, 1983, 1984, 1985, 1986 and 1987.
Honorary Scholarship, National Technical Chamber of Greece, 1984, 1985, 1986 and 1987.

6. Professional service on campus: (INSTRUCTION: LIST ONE ON-CAMPUS SERVICE PER LINE, INCLUDE SERVICE DATES; NOTE LEADERSHIP ROLE IF HELD, E.G., CHAIR, CO-CHAIR, ETC.)

Chair, ECE Department, The University of New Mexico, 2016—present.
 Member, Dean Search Committee, School of Engineering, UNM, 2016 – 2017.
 Chair, College of Engineering Graduate Studies Committee, NC State, 2014 – 2016
 Member, Faculty Senate NC State University, 2012 – present (re-elected for a second two-year term in 2014)
 Member, University Standing Committee on Engagement and Extension, NC State, 2012 – 2015
 Member, Faculty hiring committee, ECE Department, January 2011 – May 2011
 Chair, ECE Department Renewal, Promotion and Tenure Committee, 2009-2010; Vice-chair of RPT 2007-2008
 ECE Coordinator for Engineering Day at the Legislature 2009 and Spend-a-Day in Engineering Tours
 Program Coordinator, Master’s in Computer Networking (ECE Department), 2005 – 2010
 Area coordinator, ECE Networking faculty group, 2005 - 2010
 Chair, ECE Department Open House Committee (member since 2001, chair from 2003 to 2010)
 ECE Department Undergraduate Research Committee, February 2007 – present.
 ECE Department Community Outreach Committee, 2005 – 2009
 ECE Department Peer Teaching Evaluation Committee, 2001 – 2005
 ECE Department New Faculty Hiring Committee, 2001 – 2004
 Parks Scholarship Program Faculty Mentor, 2002 – present
 IAESTE Host and International Student Advisor, 2002 and 2003
 Member of the Graduate Faculty of Operations Research Program and of Computer Science

7. Professional service off campus: (INSTRUCTION: LIST ONE OFF-CAMPUS SERVICE PER LINE INCLUDING CONSULTING ACTIVITIES, IF APPLICABLE; INCLUDE SERVICE DATES; NOTE LEADERSHIP ROLE IF HELD, E.G., CHAIR, CO-CHAIR, ETC.)

Member, Awards Committee, ECE Department Heads Association, 2017 – present.
 Steering committee, IEEE CAMAD, 2012—present.
 Member IEEE ComSoc Educational Services Board, 2015—present.
 Tutorials co-Chair, IEEE ICC 2016, Kuala Lumpur, Malaysia.
 Co-chair, Networking Track, EUCNC 2015
 TPC member, IEEE Smart Grid Comm 2014 and IEEE LATINCOM 2014
 TPC co-chair IEEE LatinCom 2013, Santiago, Chile, 2013.
 TPC Chair, Green Communications Track, IEEE Globecom 2012, Anaheim.
 Co-Chair, IEEE ICC 2012, Symposium on QoS, Reliability, Performance and Modeling, Ottawa, Canada
 General Chair, IEEE CAMAD, Kyoto, Japan, June 2011.
 Vice-Chair, previously Secretary, IEEE ComSoc Tech. Comte. on Transmission, Access & Optical Systems, 2010 –
 Chair (previously Vice-Chair and Member), IEEE ComSoc Globecom-ICC Technical Committee, 2010 – present
 Voting Member-at-Large, IEEE Communications Society Education Board, 2008 – 2011.
 Co-Chair, IEEE Globecom 2010, Symposium on Quality, Reliability and Performance, Miami, Dec. 2010.
 Guest Editor, Journal of Internet Engineering special issue on “Service Oriented Infrastructure”, 2009-2010.
 Guest Editor, ACM TOMACS special issue on Modeling and Simulation of Cross Layer Systems, 2008 – 2010.
 Co-chair, Workshop on Enabling the Future Service Oriented Internet, IEEE Globecom 2009, Honolulu
 Workshops Chair and member of the Executive Committee, IEEE Globecom 2008, New Orleans, November 2008.
 Guest Editor, Mobile Networks and Applications, “New advances in broadband wireless networking,” 2008.
 Area Editor, ACM *Transactions on Modeling and Computer Simulation*, 2007 – 2010. Associate Editor 1997-2006.
 Member of the Editorial Board, *Journal of Internet Engineering*, 2006 – present.
 Member of Editorial Board, *Intl. Journal of Simulation and Process Modeling*, August 2004 – present
 Member of the Editorial Board, IEEE *Communications Surveys and Tutorials*, 2006 – present
 Associate Editor, IEEE Communications Letters, 2002 – 2006
 Guest Editor, *Computer Networks*, Special Issue “Long-Range Dependent Traffic Modeling”, Oct. 2004
 Guest Editor, *Computer Networks*, Issue on “Self-Similar Traffic Modeling and Engineering”, Oct. 2002
 Guest Editor, *ACM TOMACS*, Spec. Issue on Modeling and Simulation of Comm. Networks, April 2000
 Co-chair, Workshop on Enabling the Future Service Oriented Internet, IEEE Globecom 2007, Washington, DC.
 Co-Chair, IEEE Globecom 2006, Quality, Reliability and Performance of Emerging Network Services, San Francisco
 Co-Chair, IEEE ICC 2005, Symposium on QoS, Reliability and Performance, Seoul, Korea
 Co-Chair, IEEE ICC 2004, Symposium on High Speed Networks, Paris, France
 Co-Chair, IEEE ICC 2002, Symp. on Next Gen. Internet, New York City; Co-Chair IEEE CAMAD 2000, New Orleans
 Reviewer IEEE Trans. on Comm., IEEE Trans. on Networking, IEEE Trans. Automatic Control, IEEE GLOBECOM.
 NSF Panelist December 2001, June 2002, January 2003, July 2004, May 2005, May 2006, May 2009
 Visiting Scholar, IBM Webshpere Technology Institute, 2005 – 2006 and 2008 – present.

I. LEADERSHIP RESPONSIBILITIES AND ACHIEVEMENTS

- Department Chair and Professor, ECE Department, The University of New Mexico, July 2016 – present.

Leading an ECE department of 29 tenure track, 5 lecturers, 10 staff, 400 undergrads, 280 grads, and a large number of researchers and post-docs. Administering operations, budget, hiring, evaluations, promotions, processes, recruiting, and academic planning.

Highlights of Achievements

- Proposed, designed, passed through approvals and delivered two new “managed online programs”, a Masters on the Internet of Things and a Masters on Space Systems Engineering.
 - Had successful external Academic Program Review for whole ECE in 2017-18.
 - Held successful visits and reviews for ABET in 2017.
 - Had recent successes in giving/philanthropy among ECE alumni (\$300K and new \$1.1M)
 - Added new cutting-edge undergraduate “WHY” Lab at UNM, with Q-Bots and Q-Drones.
 - Held 3d IEEE Communications Society Summer school at UNM in 2017.
 - Participated in ECEDHA (ECE dept. heads association) leadership regionally and nationally.
 - Fostered IEEE, GSA, SWE, NSBE, HESO groups (increased numbers and participation).
 - Supported ECE New Mexico Student research conference at UNM.
 - Funded and fostered student competitions, mentoring events, social activities and outreach.
 - Established new mentoring program for junior faculty aiming at inclusion and diversity
 - Initiated high school visits to ECE and shared credits courses with Albuquerque system.
 - Hired three new assistant professors so far (one female) and actively hiring for two more.
 - Initiated international partnerships for hybrid delivery of new online Masters.
 - Negotiated quantum computing initiative at UNM, including Q-Hub with IBM and partnership with Physics, and new faculty positions.
 - Launched initiatives for branding, promoting, and advertising the ECE department.
- Director of Graduate Programs, ECE Department, NC State, January 2011 – May 2016.

Lead four different Masters and two Doctorate programs, plus online degrees, with over 600 Masters students and 250 PhD students. Responsible for operations, processes, approvals, growth, recruiting, admissions, corporate relations, and strategic planning.

Highlights of Achievements

- Conceived, discussed, proposed, and passed through approvals new graduate “premium tuition.” The program is now bringing in excess of \$1.5M to the ECE department from our MS students alone.
- Had successful external Academic Program Review for the graduate programs.
- Chaired the College of Engineering Graduate Studies committee, and worked on new programs approvals, outreach and recruiting, on behalf of the largest College at NC State.
- Successfully promoted and advertised our ECE graduate programs. Achieved large increases in numbers of applications, and rate of enrollments (per admission).
- Led the reviewing and remaking of our processes for admissions, enrollment, visas, advising and academic progress.

- Innovated in student advising by introducing new roles among the staff and hiring assistant director to advise our MS students.
 - Redesigned and revamped our office processes and physical layout.
 - Hired and trained several staff members.
 - Worked closely with College of Engineering and University offices to promote our student success.
 - Introduced new assessment rubrics and processes that promoted student success.
- Professor and Coordinator of the Masters in Computer Networking, ECE Department, NC State, July 2006 — Dec 2010.

Coordinated a large Master's program, in conjunction with Computer Science. We had well over 250 students, both on campus and online. Oversaw program admissions, recruiting, and curriculum planning.

Highlights of Achievements

- Increased applications, admissions and enrollments.
 - Successfully promoted program with corporate partners.
 - Advised hundreds of Masters students.
 - Led the development and improvement of curriculum, with a team of 10 faculty.
 - Oversaw program execution, teaching schedules and materials such as OPNET.
 - Led the development of the SSME (Services Science, Management and Engineering) program, in conjunction with Computer Science and College of Management.
 - Engaged with Computer Science and College of Management in out-of-the-box collaborations including virtual organizations, socio-technical modeling of virtual and augmented reality, and AI-assisted student localization services.
- Associate Professor and Department Associate Chair, Systems and Computer Engineering, Carleton University, Canada, July 1998 – June 1999.

Led the undergraduate operations of a large Systems and Computer Engineering department. Advised students, oversaw rules on academic progress and ethical conduct. Planned admissions and curriculum.

Highlights of Achievements

- Introduced undergraduate degrees: Software Engineering and Communications Engineering.
- Worked on student success and curriculum improvements.
- Advised and mentored extensively our undergraduate students.
- Co-directed the Broadband Networks Laboratory, with many graduate students and post-docs.
- Participated in the Carleton University Network Planning and Design Committee.
- Coordinated the Carleton University Communications Engineering Program.
- Served on the Carleton University Engineering Academic Planning Committee.
- Contributed to the Engineering Committee on Admissions and Studies.
- Served as the SCE Departmental liaison for the Training and Learning Resources Center.

II. SCHOLARSHIP IN THE REALMS OF FACULTY RESPONSIBILITY

(Scholarship in Teaching, Discovery of Knowledge, Creative Artistry and Literature, Technological and Managerial Innovation, Extension and Engagement)

A. PUBLICATIONS, AWARDS, AND ED. BOARD/PROGRAM COMMITTEE

List items as applicable, e.g., original research articles and research review articles in peer-reviewed journals, refereed articles that are pedagogy or extension-related, research abstracts, books; interdisciplinary/multidisciplinary works; invited and contributed research presentations; appointments or election to study sections and editorial boards; creative or professional works; exhibitions; juried shows, honors; awards, fellowships, prizes, competitions, and other pertinent evidence.

Publication Type	Number
Refereed Journal Articles Published or Accepted	40
Journal Articles Submitted and Pending	3
Refereed Conference Papers Published or Accepted	128
Conference Paper Submitted and Pending	3
Standards Contributions	2
Non-Refereed/Invited Presentations	61
Book Chapters	5

JOURNAL PUBLICATIONS

(a) Published

1. D. Sikeridis, B. P. Rimal, I. Papapanagioutou and M. Devetsikiotis, "Unsupervised Crowd-Assisted Learning Enabling Location-Aware Facilities," in IEEE Internet of Things Journal. doi: 10.1109/JIOT.2018.2810808
2. C. Kong, R. Jovanovic, I. Bayram and M. Devetsikiotis, "A Hierarchical Optimization Model for a Network of Electric Vehicle Charging Stations," *Energies*, vol.10, no.5, 2017.
3. K. Christidis and M. Devetsikiotis, "Blockchains and Smart Contracts for the Internet of Things", K. Christidis and M. Devetsikiotis, in IEEE Access, vol. 4, pp. 2292-2303, 2016.
4. I. S. Bayram, G. Michailidis, and M. Devetsikiotis, "Unsplittable Load Balancing in a Network of Charging Station under QoS Guarantees," IEEE Transactions on Smart Grid, 6, no. 3 (2015): 1292—1302.
5. I. S. Bayram, G. Michailidis, M. Devetsikiotis, and F. Granelli, "Electric Power Allocation in a Network of Fast Charging Stations", IEEE Journal on Selected Areas in Communications: Smart Grid Communication Series, 31, no. 7 (2013): 1235—1246.
6. C. Kong, I. Bayram, and M. Devetsikiotis, "Revenue Optimization Frameworks for Multi-Class PEV Charging Stations," *IEEE Access*, vol. 3, pp. 2140- 2150, Nov. 2015.
7. Papapanagioutou, Matthias Falkner, and M. Devetsikiotis, "Optimal Functionality Placement for Multi-Play Service Provider Architectures", in IEEE Trans. on Network and Services Management, vol. 9, no. 3, Sept. 2012.
8. M. Kallitsis, G. Michailidis, and M. Devetsikiotis, "Optimal Power Allocation under Communication Network Externalities", in IEEE Transactions on Smart Grid, vol. 3, no. 1, pp. 162-173, Mar. 2012.
9. I. Papapanagioutou, F. Granelli, D. Kliazovich, M. Devetsikiotis, [A Metamodeling Approach for Cross-Layer Optimization: A Framework and Application to Voice over WiFi](#)", Simulation Modeling Practice and Theory, Volume 19, pp. 2117-2129, 2011.
10. R. Callaway and M. Devetsikiotis, "An Autonomic Service Delivery Platform for Service Oriented Network Environments", in the IEEE Transactions on Services Computing, vol. 3, no. 2, pp. 104-115, April-June 2010.
11. Z. Benajmin Feng, C. Huang and M. Devetsikiotis, "FISTE: A Black-Box Approach for End-to-End QoS Management", in ACM Transactions on Modeling and Computer Simulation, vol. 19, no. 4, October 2009.
12. M. G. Kallitsis, G. Michailidis and M. Devetsikiotis, "Measurement Based Optimal Resource Allocation of Network Services via Pricing Differentiation", in Performance Evaluation, vol. 66, no. 9-10, pp 505-223, Sept. 2009.
13. I. Papapanagioutou, D. Toumpakaris, J. Lee and M. Devetsikiotis, "A Survey on Next Generation Mobile

- WiMax Networks: Objectives, Features and Technical Challenges”, in *IEEE Journal of Communications Surveys and Tutorials* (on-line), vol. 11, number 4, pp. 3-18, fourth quarter 2009.
14. I. Papanagioutou, G. S. Paschos and M. Devetsikiotis, “A Comparison Performance Analysis of QoS WLANs: Approaches with Enhanced Features,” *Journal of Advances in Multimedia*, vol. 2007, article ID 23817, special issue on “Multimedia Transmission over Emerging Wireless Technologies”.
 15. J. Hui and M. Devetsikiotis. “The Use of Metamodeling for VoIP over Wi-Fi Capacity Evaluation”, in the *IEEE Transactions on Wireless Communications*, vol. 7 (1), pp 1-5, January 2008.
 16. A. Drummond, N. Fonseca and M. Devetsikiotis, “A Multiobjective Fuzzy Bandwidth Partitioning Model for Self-Sizing Networks”, in the *European Journal of Operations Research*, vol. 191/3, pp 1161-1174, 2008.
 17. S. S. Nalatwad and M. Devetsikiotis, “Wavelet-based Neighborhood Control for Self-Sizing Networks”, in *Simulation*, Trans. of the Society for Modeling and Simulation International, vol. 83 (3), pp 229-244, March 2007.
 18. C.-C. Hsu and M. Devetsikiotis, “An Adaptive Approach to Accelerated Evaluation of Highly Reliable Systems”, in *ACM Transactions on Modeling and Computer Simulation*, vol. 18 (1), December 2007.
 19. P. Xu, G. Michailidis and M. Devetsikiotis, “Profit Oriented Resource Allocation Using On Line Scheduling in Flexible Heterogeneous Networks”, in *Telecommunication Systems*, Vol. 31, Numbers 2-3, March 2006, pages 289 – 303.
 20. J. Hui and M. Devetsikiotis, “A Unified Model for the Saturation Throughput and Delay Analysis of IEEE 802.11 EDCA”, *IEEE Transactions on Communications*, vol. 53, number 9, pp 1498 - 1510, Sept. 2005.
 21. B. M. Ninan and M. Devetsikiotis, “Game-Theoretic Resource Pricing for the Next Generation Internet, in *Performance Evaluation and Planning Methods for the Next Generation Internet*, special issue by Springer for the 25th Anniversary of GERAD, Andre Girard, Brunilde Sanso and Felisa Vazquez-Abad, Editors, pp 141 - 164.
 22. S. S. Oruganti and M. Devetsikiotis, “Robust AQM Schemes for Correlated and Cooperative Traffic”, *Computer Communications*, Volume 28, Issue 1, 31 January 2005, pp 1-11.
 23. A. U.H. Sheikh, T. Wan, Z. Al-Akhdhar, I. Lambadaris and M. Devetsikiotis, “Performance Analysis of Buffered R-ALOHA Using Tagged user Approach,” *Journal of Network & Computer Applications*, vol. 27, no. 3, pp 131-150, Elsevier Publishers, August 2004.
 24. S. Grishechkin, M. Devetsikiotis, I. Lambadaris and C. Hobbs, “Retransmission as a Source of Multistability,” in *SIAM Theory on Probability and its Applications*, vol. 47, 1, pp 139 – 150, 2003.
 25. F. Haciomeorglu and M. Devetsikiotis, “A Dynamic Time Scale Approach for On-Line Measurement-based Capacity Allocation”, *Journal of the Brazilian Telecommunications Society*, vol. 18, number 2, pp 209 – 217, October 2003.
 26. N. Laskin, I. Lambadaris, F. Harmantzis and M. Devetsikiotis, “Fractional Levy Motion and its Application to Traffic Modeling”, *Computer Networks*, vol. 40, no. 3, pp. 363 - 375, October 2002 (Special Issue on *Long-Range Dependent Traffic Engineering*).
 27. M. Falkner, M. Devetsikiotis, and I. Lambadaris, “An Overview of Pricing Concepts for Broadband Networks”, in *IEEE Communication Surveys*, Vol. 3, No. 2, 2nd quarter 2000 (on line).
 28. A. Iuoras, P. Takats, C. Black, R. DiGirolao, E. A. Wibowo, J. Lambadaris and M. Devetsikiotis, “Quality of Service-Oriented Protocols for Resource Management in Packet-Switched Satellites”, in the *International Journal of Satellite Systems*, vol. 17, no. 2-3, pp. 129-141, 1999.
 29. M. Falkner, M. Devetsikiotis, and I. Lambadaris, “Issues on Fast Network Simulation by Use of Effective and Decoupling Bandwidths”, *ACM Transactions on Modeling and Computer Simulation*, vol. 9, no. 1, January 1999, pp 45-58.
 30. M. Falkner, M. Devetsikiotis, and I. Lambadaris, “Minimum Cost Traffic Shaping”, *IEEE Communications Letters*, Vol. 3, No. 9, pp 257-259, September 1999.
 31. T. Taralp, M. Devetsikiotis, and I. Lambadaris, “In Search of Better Statistics for Traffic Characterization”, *Journal of the Brazilian Computer Society*, special issue on *Traffic Modeling and Control of Wired and Wireless Networks*, Vol. 5, No. 3, pp. 5-13, April 1999.
 32. C. Huang, M. Devetsikiotis, I. Lambadaris, and A.R. Kaye, “Fast Simulation of Queues with Long-Range Dependent Traffic”, *Communications in Statistics - Stochastic Models*, Vol. 15, No. 3, pp. 429 – 460, 1999.
 33. J. K. Townsend, Z. Haraszi, J. A. Freebersyser, and M. Devetsikiotis, “Simulation of Rare Events in Communication Networks”, *IEEE Communications Magazine*, Vol. 36, No. 8, pp 36 – 41, August 1998.
 34. C.M. Sharon, I. Lambadaris, M. Devetsikiotis, and A.R. Kaye, “Modeling and Control of VBR H.261 Video Transmission over Frame Relay Networks”, *IEEE Transactions on Circuits and Systems for Video Technology*, Vol. 7, No. 3, pp. 527-538, June 1997.
 35. R. Ismail, I. Lambadaris, M. Devetsikiotis, and A.R. Kaye, “Simulation and Modeling of Variable Bit Rate

- MPEG Video Transmission over ATM Networks”, *International Journal of Communication Systems*, Vol. 9, pp. 283-297, 1996.
36. W.A. Al-Qaq, M. Devetsikiotis, and J.K. Townsend, “Stochastic Gradient Optimization of Importance Sampling for the Efficient Simulation of Digital Communication Systems”, *IEEE Transactions on Communications*, Vol. 43, No. 12, pp 2975 – 2985, December 1995.
 37. I. Lambadaris, M. Devetsikiotis, A. R. Kaye, M. R. Ismail, C. M. Sharon, Y. Fang, and C. Huang, “Traffic Modeling and Design Methodologies for Broadband Networks”, *Canadian Journal of Electrical and Computer Engineering*, Vol. 20, No. 3, pp 105 – 116, 1995.
 38. M. Devetsikiotis, J.K. Townsend, “An Algorithmic Approach to the Optimization of Importance Sampling Parameters in Digital Communication System Simulation”, *IEEE Transactions on Communications*, Vol. 41, No. 10, pp 1464 – 173, October 1993.
 39. M. Devetsikiotis, J. K. Townsend, “Statistical Optimization of Dynamic Importance Sampling Parameters for Efficient Simulation of Communication Networks”, *IEEE/ACM Transactions on Networking*, 1(3), pp 293 – 305, June 1993.
 40. W. A. Al-Qaq, M. Devetsikiotis, and J. K. Townsend, “Importance Sampling Methodologies for Simulation of Communication Systems with Time-Varying Channels and Adaptive Equalizers,” *IEEE Journal on Selected Areas in Communications*, Vol. 11, No. 3, pp. 317-327, April 1993.

(b) In Press**(c) In Review**

1. I. S. Bayram, I. Papapanagiotou G. Michailidis, and M. Devetsikiotis, “A Survey on Communication Technologies and Requirements for Electric Vehicle Networks,” IEEE Communication Tutorials and Surveys (submitted).
2. C. Kong, B. Rimal, B. Bhattarai, I. Bayram and M. Devetsikiotis, “Cloud-Based Charging Management of Smart Electric Vehicles in a Network of Charging Stations.” *IEEE Transactions on Smart Grid*, 2018 (submitted).
3. B. Rimal, C. Kong, B. Bhattarai, M. Maier and M. Devetsikiotis, “Charging of Smart Electric Vehicles in the Era of Internet of Vehicles and Blockchain.” *IEEE Communications Magazine*, 2018 (submitted).

BOOKS

BOOK CHAPTERS

(a) Published

1. I. S. Bayram, G. Michailidis, M. Devetsikiotis, F. Granelli, and S. Bhattacharya, “Smart Vehicles in the Smart Grid: Challenges, Trends, and Application to the Design of Charging Stations”, in *Control & Optimization Methods for Electric Smart Grids*, A. Chakraborty and M. D. Ilic (Eds.), Springer, MA, 2012.
2. I. Papapanagiotou, J. Hui and M. Devetsikiotis. “On the Pricing of WiMAX Networks”, in the book “WiMAX Evolution: Emerging Technologies and Applications”, M. Katz and F. Fitzek (eds.), Wiley, March 2009, ISBN 978-0470696804.
3. D. Kliazovich, M. Devetsikiotis and F. Granelli, “Formal Methods in Cross-Layer Modeling and Optimization of Wireless Networks: State of the Art and Future Directions”, in “Heterogeneous Next Generation Networking: Innovation and Platform”, S. Kotsopoulos and K. Ioannou, editors, IDEA publishing group.
4. M. Devetsikiotis and N. Fonseca, “Network Traffic Modeling”, the Wiley Encyclopedia of Telecommunications (J. Proakis, editor), John Wiley & Sons.

(b) To appear

STANDARDS BODY CONTRIBUTIONS

1. “NAL Compatible to QoS Controlled Network”, submitted to Joint Video Team (JVT) of ISO/IEC MPEG & ITU-T VCEG (ISO/IEC JTC1/SC29/WG11 and ITU-T SG16 Q.6), 3rd Meeting: Fairfax, Virginia, USA, 6-10 May, 2002.
2. Since the Fall of 2000 I have been working with Nortel Networks to define traffic and system models to assist the standardization efforts of the IEEE 802.17 Working Group (new multiple access protocols for metropolitan area optical rings).

PEER-REVIEWED CONFERENCE/WORKSHOP PUBLICATIONS

(a) In Published Proceedings

1. D. Sikeridis, E.E. Tsiropoulou, M. Devetsikiotis, and S. Papavassiliou, "Self-Adaptive Energy Efficient Operation in UAV-assisted Public Safety Networks," in IEEE 19th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), June 2018.
2. C. Kong, B. Rimal, B. Bhattarai and M. Devetsikiotis, “Cloud-Based Charging Management of Electric Vehicles in a Network of Charging Stations.” In proceedings of *IEEE International Conf. on Communications (ICC)*, 2018.
3. D. Sikeridis, E.E. Tsiropoulou, M. Devetsikiotis, S. Papavassiliou " Socio-physical Energy-Efficient Operation in the Internet of Multipurpose Things". In Proceedings of IEEE International Conf. on Communications (ICC), 2018.
4. D. Sikeridis, M. Devetsikiotis, and I. Papapanagiotou, “Occupant Tracking in Smart Facilities: An Experimental Study”, InvitedPaper in 5th IEEE Global Conference on Signal and Information Processing GlobalSIP 2017, Montreal, Canada, November 14–16, IEEE 2017
5. D. Sikeridis, M. Devetsikiotis, and I. Papapanagiotou, "A Cloud-Assisted Infrastructure for Occupancy Tracking in Smart Facilities.", in 5th International IBM Cloud Academy Conference ICACON 2017, At Wroclaw, Poland, 2017
6. M. Inaya, M. Meli, D. Sikeridis, and M. Devetsikiotis, “A Real-Subject Evaluation Trial for Location-Aware Smart Buildings”, in Conference on Computer Communications Workshops (INFOCOM WKSHPS), Atlanta, GA, USA, May 1-4, IEEE 2017
7. Kong, Cuiyu, and Michael Devetsikiotis. "Optimal charging framework for electric vehicles on the wireless charging highway." In Computer Aided Modelling and Design of Communication Links and Networks (CAMAD), 2016 IEEE 21st International Workshop on, pp. 89-94. IEEE, 2016.
8. Zafari, Faheem, Ioannis Papapanagiotou, Michael Devetsikiotis, and Thomas J. Hacker. "Enhancing the accuracy of ibeacons for indoor proximity-based services." In Communications (ICC), 2017 IEEE International Conference on, pp. 1-7. IEEE, 2017.
9. M. Becvarik and M. Devetsikiotis, “Modeling of User Quality of Experience in Location Aware Smart Spaces” in Proceedings of Digital Media Industry and Academic Forum, Santorini 2016.
10. Y. Wang, M. Becvarik and M. Devetsikiotis, “Stochastic Modeling of Managed Resources in a Location Aware Smart Building”, in Proc. of Intl. Conf. on Telecommunications, ICT 2016
11. M. C. Falvo, D. Sbordone, I. S. Bayram, M. Devetsikiotis, “EV Charging Stations and Modes: International Standards” in Proc. of *Intl. Symposium on Power Electron. Electr. Drives Autom. Motion 2014 (SPEEDAM 2014, IEEE conference publications)*, Jun. 2014.
12. D. Sbordone, M.C. Falvo, L. Martirano, M. Devetsikiotis, B. Di Pietra, “Interactive Energy: An Approach to the Dynamic Pricing and Dispatching of EC Charging Service,” in Proc. of the 40th Annual Conference of the IEEE Industrial Electronics Society, IECON 2014, pp 3556-3562.
13. K. Christidis, M. Devetsikiotis, “Experimenting with a Cloud Computing Platform for Research into Smart Buildings,” in Proceedings of 2nd ICA CON, 2014.
14. Q. Wang, F. Granelli, and M. Devetsikiotis, “Fast Power Charging Strategy for EV/PHEV in Campus Parking with Deployment of Renewable Energy,” in Proc. of IEEE CAMAD 2014, pp. 370-374.
15. I. S. Bayram, G. Michailidis, I. Papapanagiotou, and M. Devetsikiotis, “Decentralized Control of Electric Vehicles in a Network of Fast Charging Stations,” in proceedings of IEEE Globecom 2013.
16. I. S. Bayram, G. Michailidis, M. Devetsikiotis, “Electric Power Provisioning for Large Scale EV Charging

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(b) In Press (Accepted for Publication)

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1. Sikeridis, Dimitrios, Bhaskar Prasad Rimal, Ioannis Papapanagiotou, and Michael Devetsikiotis. "A Location-Aware Infrastructure based on Crowd-Assisted Unsupervised Learning". Submitted to IEEE INFOCOM 2018.
2. D. Sikeridis, E. E. Tsiropoulou, M. Devetsikiotis, and S. Papavassiliou. "On the Problem of Energy Efficient Operation in Public Safety Networks." In *A World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, 2018 IEEE 19th International Symposium on, IEEE, 2018.
3. D. Sikeridis, E. E. Tsiropoulou, M. Devetsikiotis, and S. Papavassiliou. "Software-Defined Context-Aware Wireless Protocol Selection in Public Safety Networks." In *Information Theory (ISIT)*, 2018 IEEE International Symposium on, IEEE, 2018.

NON-REFEREED AND INVITED PRESENTATIONS

1. D. Sikeridis, I. Papapanagiotou, B.P. Rimal, and M. Devetsikiotis, 2017. "A Comparative Taxonomy and Survey of Public Cloud Infrastructure Vendors", arXiv preprint arXiv:1710.01476.
2. Zafari, F., Papapanagiotou, I., Devetsikiotis, M., & Hacker, T. (2017). An ibeacon based proximity and indoor localization system. *arXiv preprint arXiv:1703.07876*.
3. Keynote presentation at the First Smart Grid Resilience Workshop, SGR 2015, San Diego, December 2015.
4. Invited keynote at the ESTEL conference, Rome, October 2012.
5. Invited presentation on Communications for the Smart Grid, University of Vigo, May 2012.
6. M. Devetsikiotis, "Designing Smarter Networks: Modeling Communications in the Era of Service Awareness, Social Networks and the Smart Grid," featured talk at MACOM 2011, Trento, Italy, Sept. 2011.
7. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Atlanta Section (GaTech-GTRI), November 2011.
8. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Birmingham, Alabama, November 2011.
9. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE South Carolina Section, Columbia, October 2011.
10. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Coastal South Carolina Section, Charleston, October 2011
11. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Atlanta Section (GaTech-GTRI), November 2011.
12. M. Devetsikiotis, "Networked Virtual Collaboration: A Modeling Perspective", presented as part of the IEEE ComSoc Distinguished Lecture series, Charleston, South Carolina, June 2011.
13. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Chicago Chapter (UI-Chicago), May 2011.
14. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, IEEE Denver Chapter (Devry University), May 2011.
15. M. Devetsikiotis, "---", presented as part of the IEEE ComSoc Distinguished Lecture series, Iowa State University, Ames, IA, May 2011.
16. M. Devetsikiotis, "Networked Virtual Collaboration: A Modeling Perspective", presented as part of the IEEE ComSoc Distinguished Lecture series, University of Pisa, Italy, September 2010.

17. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, University of Thessaloniki, Greece, November 2010.
18. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, NEC Research, Heidelberg, Germany, October 2010.
19. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, University of Quebec, Canada, November 2010.
20. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, Algonquin College, Ottawa, Canada, November 2010.
21. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, Université du Quebec – Trois Rivieres, Canada, November 2010.
22. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, Concordia University, Montreal, Canada, November 2010.
23. M. Devetsikiotis, “Networked Virtual Collaboration: A Modeling Perspective “, Distinguished Lecture series, University of Cape Town, South Africa, May 2010.
24. M. Devetsikiotis, “Networked Virtual Collaboration: A Modeling Perspective “, Distinguished Lecture series, IMDEA Networks and Univ. Carlos III, Spain, March 2010.
25. M. Devetsikiotis, “---“, Distinguished Lecture series, Telefonica Research, Barcelona, Spain, March 2010.
26. M. Devetsikiotis, “---“, Distinguished Lecture series, CTTC, Barcelona, Spain, March 2010.
27. M. Devetsikiotis, “---“, presented as part of the IEEE ComSoc Distinguished Lecture series, University of Santiago de Chile, Dec. 2009.
28. M. Devetsikiotis, “---“, Distinguished Lecture series, Univ. Católica de Valparaíso, Chile, Dec. 2009.
29. M. Devetsikiotis, “Next Generation Service Oriented Networks: Virtual Collaboration, Modeling, and Optimization”, presented at a joint meeting of IEEE and ACM, DeVry University, Columbus, May 2009.
30. M. Devetsikiotis, “Next Generation Service Oriented Networks: Virtual Collaboration, Modeling, and Optimization”, presented at the University of Pittsburgh, May 2009.
31. M. Devetsikiotis, “Next Generation Service Oriented Networks: Modeling, Pricing and Optimization”, presented at a joint meeting of the IEEE Chapters of Northern Virginia, Washington, D.C. and Baltimore, LTS College Park, May 2009.
32. M. Devetsikiotis, “Next Generation Service Oriented Networks: Modeling, Pricing and Optimization”, presented at the National Chamber of Engineering, Santiago, Chile, October 2008.
33. M. Devetsikiotis, “Next Generation Service Oriented Networks: Traffic Modeling and Control”, presented at ANTEL, Montevideo, Uruguay, September 2008.
34. M. Devetsikiotis, “Next Generation Service Oriented Networks: Pricing and Optimization”, presented at EXPOCOMM 2008 and at the University of Buenos Aires, Argentina, September 2008.
35. M. Devetsikiotis, “Modeling, Online Performance Monitoring and Accelerated Evaluation of Network Services”, presented at the College of William and Mary, Williamsburg, March 2007.
36. M. Devetsikiotis, “Modeling, Online Performance Monitoring and Accelerated Evaluation of Network Services”, presented at the University of Sao Paulo and the State University of Campinas, Brazil, October 2006.
37. M. Devetsikiotis, “Modeling, Online Performance Monitoring and Accelerated Evaluation of Network Services”, presented at Penn State University, September 2006.
38. L. Aiman-Smith, S. Allen, M. Devetsikiotis, C. Nygard, J. McReery, M. Montoya-Weiss, H. Perros, A. Rindos, and I. Viniotis, “Service Science, Management and Engineering Curricula and Research at NC State University”, presented at the Global SSME conference, Palisades, NY, 2006.
39. P. Xu, G. Michailidis and M. Devetsikiotis, “Profit Oriented Resource Allocation using On Line Scheduling in Flexible Multi-Service Networks”, presented at the 3d IFIP International Workshop on Next Generation Networks: Architectures, Protocols, Performance, Belize, March 2005
40. M. Devetsikiotis, G. Michailidis and P. Xu, “Measurement-based Resource Allocation and On-line Scheduling of Differentiated Services”, Economics of Communication Networks, part of the Workshop on Stochastic Networks, University of Montreal, Quebec, Canada, July 2004.
41. M. Devetsikiotis, “Adaptivity Mechanisms in Next Generation Networks”, Alcatel Research and Innovation, Paris, France, June 2004.
42. B. M. Ninan and M. Devetsikiotis, “Network Control of Elastic Traffic Through Resource Pricing”, presented at the INFORMS Joint Annual Meeting, Atlanta, October 2003.
43. Seminar in Campinas, Brazil, on variance reduction techniques for simulation of high speed networks, during SBC '03.
44. C. A. Viana Neto, M. Devetsikiotis and N. Fonseca, “Network Self-Sizing under Fractal Traffic by Use of Envelope Processes”, presented at CAMAD 2002, during IEEE ICC 2002, April 2002, New York City.

45. N. Milidrag, G. Kesidis, and M. Devetsikiotis, “Fluid simulation of large packet-switched networks”, presented at *ITCom 2001*, SPIE’s International Symposium on the Convergence of Information Technologies and Communications, Denver, August 2001.
46. J. Yang, W. Shen and M. Devetsikiotis, “Self-sizing of Multi-Service High Speed Networks”, presented at the Nortel Advanced Network Control Algorithms Workshop, Ottawa, Canada, January 25 – 26, 2001.
47. S. Grishechkin, M. Devetsikiotis, I. Lambadaris and C. Hobbs, “On Catastrophic Behavior of Queueing Networks,” presented at the Workshop on Analysis and Simulation of Communication Networks, The Fields Institute for Research in Mathematical Sciences, Toronto, November 1998.
48. M. Devetsikiotis and M. Falkner, “Importance Sampling Methods for Communication Networks”, a tutorial presented at the *International Telecommunications Symposium*, ITS '98, São Paulo, Brazil, August 1998.
49. T. Taralp, M. Devetsikiotis, and I. Lambadaris, “In Search of Better Statistics for Traffic Characterization”, presented at the *7th IEEE Workshop on Computer-Aided Modeling, Analysis and Design of Communication Links and Networks*, CAMAD '98, São Paulo, Brazil, August 1998.
50. M. Devetsikiotis and M. Falkner, “Importance Sampling Methods for Communication Networks”, a tutorial presented at the *Third IEEE Symposium on Computers and Communications*, ISCC '98, Athens, Greece, June 1998.
51. M. Falkner, M. Devetsikiotis, and I. Lambadaris, “Issues in Fast Simulation of Networks of Queues by Use of Effective and Decoupling Bandwidths”, presented at the *18th Annual Meeting of the Canadian Applied Mathematics Society, CAMS/SCMA '97*, The Fields Institute, Toronto, May 30-June 1, 1997.
52. S. Attal, M. Devetsikiotis, I. Lambadaris, and C. Huang, “Traffic Generation for Broadband Network Testing Using the GN Nettest InterWATCH 95000 Test Set”, presented at the *IEEE Symposium on Planning and Design of Broadband Networks*, Montebello, Quebec, Canada, October 18-20, 1996.
53. M. Devetsikiotis and I. Lambadaris, “Traffic Modeling, Performance Evaluation, and Design Methodologies for Broadband Multimedia Telecommunications Networks”, presented at the *Second World Congress of Nonlinear Analysts*, Athens, Greece, July 10-17, 1996.
54. S. Attal, M. Devetsikiotis, I. Lambadaris, and C. Huang, “Traffic Generation for Broadband Network Testing Using the GN Nettest InterWATCH 95000 Test Set”, presented at the *Fourth Workshop on Performance Modeling and Evaluation of ATM Networks*, Ilkley, West Yorkshire, U.K., July 8-10, 1996.
55. M. Devetsikiotis, “Importance Sampling for the Simulation of Communication Networks and Switches”, presented at the *Workshop on Simulation and Monte Carlo Methods*, Carleton University, September 1995.
56. M. Devetsikiotis, I. Lambadaris, Y. Fang, and B. Melamed, “Exponential Bounds and Importance Sampling Simulation Techniques for the Waiting Time Distribution of *TES/GI/1* Queues”, presented at the *Third ORSA Telecommunications Conference*, Boca Raton, March 20-22, 1995.
57. I. Lambadaris, M. Devetsikiotis, and A.R. Kaye, “Traffic Modeling and Performance Analysis Issues in Broadband Multimedia Networks”, presented at the *IEEE Symposium on Planning and Design of Broadband Networks*, Montebello, Quebec, Canada, October 21-23, 1994.
58. W.A. Al-Qaq, M. Devetsikiotis, and J.K. Townsend, “Importance Sampling Methodologies for Simulation of Wireless Communications Links”, presented at the *1993 Virginia Tech Symposium on Wireless Personal Communications*, Blacksburg, VA, June 9-11, 1993.
59. M. Devetsikiotis, J.K. Townsend, “On Statistical Optimization of Importance Sampling Parameters in the Simulation of Communications Links & Networks,” presented at the *4th IEEE International Workshop on Computer-Aided Modeling, Analysis, and Design of Communication Links and Networks*, Montebello, Quebec, Canada, September 29 - October 2, 1992.
60. H.J. Schlegbusch, M. Devetsikiotis, and J.K. Townsend, “Optimization of Importance Sampling Simulations by Monitoring and Feedback”, presented at the *3rd IEEE International Workshop on Computer-Aided Modeling, Analysis, and Design of Communications Links and Networks*, Politecnico di Torino, Turin, Italy, September 26-28, 1990.
61. J.K. Townsend and M. Devetsikiotis, “A Statistical Algorithm for the Optimization of Importance Sampling Parameters in the Simulation of Communication Systems”, presented at the *ORSA/TIMS Joint National Meeting*, Chicago, May 16-9, 1993.

APPOINTMENT TO EDITORIAL BOARDS

1. Guest Editor, *Journal of Internet Engineering*, special issue on Service Oriented Infrastructures, 2010.
2. Area Editor, *ACM Transactions on Modeling and Computer Simulation*, January 2007—2010.
3. Guest Editor TOMACS special issue on “Modeling and Simulation of Cross Layer Systems”, 2009.

4. Guest Editor, *Mobile Networks and Applications*, special issue on “New Advances in Broadband Wireless Networking”, 2008.
5. Member of the Editorial Board, *IEEE Communications Surveys and Tutorials*, Sept. 2006 – present.
6. Member of the Editorial Board, *Journal of Internet Engineering*, Feb. 2006 – present.
7. Associate Editor, *ACM Transactions on Modeling and Computer Simulation*, October 1997—December 2006.
8. Associate Editor, *IEEE Communication Letters*, June 2002—June 2006.
9. Associate Editor, *ACM Transactions on Modeling and Computer Simulation*, October 1997—present
10. Member of Editorial Board, *International Journal of Simulation and Process Modeling*, August 2004 – present.
11. Guest Editor, *Computer Networks*, Special Issue on Long-Range Dependent Traffic Modeling, Vol. 48, No. 3, cover date 21 June 2005.
12. Guest Editor, *Computer Networks*, Special Issue on Self-Similar Traffic Modeling and Engineering, scheduled for publication in October 2002.
13. Guest Editor, *ACM Transactions on Modeling and Computer Simulation*, Special Issue on Modeling and Simulation of Communication Networks, published in April 2000.

PARTICIPATION IN PANELS

NSF CPS Workshops December 2013.

NSF Panelist CISE/NeTS Spring 2009.

NSF Panelist, CISE/ANIR in December 2001, June 2002, January 2003, and CISE/CNS July 2004. NSF Panelist, CISE/CNS NOSS (Sensor Networks), May 2005.

HONORS AND AWARDS

1. Elevated to the grade of Fellow in the IEEE, January 2012.
2. Best paper award, IEEE SmartGridComm 2012, Taiwan.
3. Received the IEEE Communications Society Technical Committee on Communications Systems Integration and Modeling (TC-CSIM) best paper award for: U.K. Chaudhary, I. Papanagiotou, M. Devetsikiotis, "*Flow Classification Using Clustering and Association Rule Mining*", during IEEE CAMAD 2010, 3-4 December. 2010, Miami FL, USA.
4. IEEE Communication Society Distinguished Lecturer, 2008 – 2009, renewed for 2010 – 2011.
5. Best paper award, IEEE Globecom 2009, Hawaii, December 2009 (one of 16 awards among 1,000+ papers).
6. Best Paper Award, 41st Annual Simulation Symposium, April 2008, Ottawa, Canada.
7. Best Student Paper Award, QRPM Symposium, IEEE Globecom 2007, December 2007, Washington DC.
8. OPNET Modeling Excellence Achievement Award, MIL 3, 1996.
9. Phi Kappa Phi Academic Achievement Award for a Doctoral Candidate, North Carolina State University, March 1993.
10. Scholarship from National Scholarship Foundation of Greece: Academic years 82 - 83, 83 - 84, 84 -- 85, 85 -- 86 and 86 - 87, based on rank in Electrical Engineering class.
11. Honorary Scholarship from the National Technical Chamber of Greece: Academic years 83-- 84, 85 -- 86 and 86-- 87, based on rank in the School of Engineering.

II B. GRANTS AND CONTRACTS

List externally and internally sponsored grants and contracts as well as non-sponsored and independent programs that have supported your scholarship; indicate funding levels and duration.

Total funding summary

No. 35 research grants, No. 1 equipment grants, No. educational grant, No. cash gifts,

\$ USD **\$1,113,700 plus CAD \$713,000** in a total of **\$1,653,000+CAD 1,123,000** research grants, \$ **30,000** equipment grants, and \$ gifts

PROPOSALS SUBMITTED IN 2015:

Developing and modeling a prototype smart system of engagement

IBM

\$40,000 June 2015 Funded

PI: M. Devetsikiotis

Funded

In this project we plan to develop and study a prototype smart space that senses the presence of users in it, tracks them throughout the room, and adjusts the output of its resources (thermostat, lights, monitors, and other actuators) accordingly. We will do so, in order to capture the dynamic interactions between the users and their surroundings, and then, based on this data, construct a refined stochastic model to quantify the quality of service that the user receives in an intelligent space (assuming relevant utility functions found in the literature).

PROPOSALS SUBMITTED IN 2014:

Collaborative Research: CyberSEES: Type 1: Cyber Enabled Electric Vehicle Infrastructure

NSF

\$190,000 MARCH 2014 – NOT FUNDED

PI: DEVETSIKIOTIS

In this proposal, we focus on the large scale, spatio-temporal modeling of smart grid distribution networks. Such systems have inherently both cyber (economics, communications and control) as well as physical (dynamic electrical energy) aspects, and can be very large, in their full scope in space and time. Hence, we propose to model them as spatio-temporal “cyber-physical” systems, where energy flows, communication entities and control agents are all modeled jointly and in an explicitly coupled manner, in order to fully characterize the system and achieve specific performance goals.

Collaborative RIPS Type 2: A Resilient Power Grid Framework Against Cyber and Physical Failures: From Fundamental Understanding to System Integration

NSF

\$700,000 APRIL 2014 – NOT FUNDED

PI: W. WANG (co-PI DEVETSIKIOTIS, collaboration with ABB and U. Michigan)

Smarter buildings, campuses, smarter cities and smarter infrastructure in general, are all coming closer to reality based on advances in information technology, large scale data analytics and cloud computing. The “Smart Grid” and the energy sector have recently attracted a lot of attention. They represent a very appealing but also a very challenging area, where the IT and energy domains converge to interdependent systems. The broad objective of this project is to delineate *design, modeling* and layered *control strategies* for critical infrastructure systems equipped with ESS. To achieve this goal, expertise in power electronics, communications, control, and analytics is needed. If this problem can be effectively understood and addressed, then the resulting methodology can serve as a canonical paradigm for other critical infrastructures and “RIPS”, including microgrid management in military bases and off-base (battlefield) camps, and airports. Thus, this research direction can have broader impact and relevance.

Service Level Agreements in Cloud Deployments

Cisco University Research Program

\$118,870

PI: DEVETSIKIOTIS (COLLABORATION WITH I. PAPAPANAGIOTOU, PURDUE)

In this project, we study a holistic view of an SLA on the Cloud that can be offered as a service, i.e. SLA as Service (SLAaaS). We view the Cloud as a combination of dynamic resources that can be controlled to offer the appropriate QoS. The proposed SLAaaS is based on a three-fold approach: (1) properly allocating the Virtual Machines (VMs) to the hosts, (2) properly servicing the storage volume requests on demand (storage elasticity), and (3) dynamically performing network based load balancing services by virtualizing the network connectivity to varying degrees. Our goal is to provide high availability, scaling, and operational convenience to the Cloud consumer.

Using IOC and Watson for load forecasting applications in smart buildings

IBM FACULTY AWARD

\$40,000 APRIL 2014 – FUNDED

Our proposed plan is twofold: One, we want to set IOC up so that it interacts with the recently installed network-ready electric meters (Nexus 1262) in buildings across Centennial Campus at NC State. Two, we recently completed our work on an experimental framework that optimizes a building's energy consumption based on a given target budget, and we wish to see how this could be paired with IOC. To this end, we will be looking into setting up new KPIs with regards to projected energy consumption for the upcoming hour; mathematically, a way that strikes a good balance between efficiency and a somewhat acceptable degree of accuracy would be via double exponential smoothing. Our end goal is building a testbed where continuous monitoring of power and automated optimization take place. Finally, we are also keenly interested to explore how we could make use of the Watson technology within the smart building context.

PROPOSALS SUBMITTED IN 2013:

Collaborative Research: CyberSEES: Type 2: Cyber Enabled Electric Vehicle Infrastructure

NSF

\$866,559 MARCH 2013 – NOT FUNDED

PI: DEVETSIKIOTIS (WITH LUKIC AND BHATTACHARYA AND MICHIGAN)

In this proposal, we focus on the large scale, spatio-temporal modeling of smart grid distribution networks. Such systems have inherently both cyber (economics, communications and control) as well as physical (dynamic electrical energy) aspects, and can be very large, in their full scope in space and time. Hence, we propose to model them as spatio-temporal “cyber-physical” systems, where energy flows, communication entities and control agents are all modeled jointly and in an explicitly coupled manner, in order to fully characterize the system and achieve specific performance goals.

LTE Deployment for Enabling and Optimizing Smart Grid Functionalities and Services

EUROPEAN COMMISSION – SEVENTH FRAMEWORK PROGRAMME FP7

APRIL 2013 – NOT FUNDED

PI: M. DEVETSIKIOTIS (FOR THE US SEGMENT – LED BY COLLABORATOR IN GREECE)

The project aims at building an integrated smart grid control platform and the associated wireless communication infrastructure to support it. The project will be built around a smart-grid infrastructure that is currently under development in the context of the Stockholm Royal Seaport activity. In this project we will enhance the existing infrastructure with an LTE wireless network infrastructure so as to coordinate the actions of the involved entities (home users, distributed generation units and Distribution Systems Operators) and reap the benefits of demand-response (DR) and distribution automation. The project relies on the premise that LTE technology is perhaps the best candidate substrate communication technology to support such a diverse mixture of requirements of smart-grid enabled services.

Joint Computing, Communication and Energy Control: Towards a Smart Appliance for a Smarter Campus

IBM FACULTY AWARD

\$40,000 FEBRUARY 2013 – FUNDED

In this project we continue to work on algorithmic solutions to the combined real-time computing,

communications and energy management in smart campus buildings. We will aim at packaging these algorithms into an appliance format and we will integrate with the ongoing “smarter campus” efforts, in collaboration with IBM and the FREEDM center, on NC State’s Centennial Campus, also leveraging the Intelligent Operations Center (IOC) software.

ALICE Adaptive Learning Spaces and Interactive Content Environments

IMLS NATIONAL LEADERSHIP GRANTS
\$345,000 SPRING 2013 – FUNDED IN 2014
PI: R. MICHAEL YOUNG, CSC – FUNDED

The ALICE project is a multi-disciplinary, faculty-driven research project to create software for maintaining a visually rich, adaptive, and interactive display environment that reflects the social dynamics and intellectual output of the research and learning community within the Hunt Library.

EXTERNAL GRANTS (AT NC STATE, 2001 – 2012)

SEP: A Sustainable Electrified Transportation Pathway Based on Renewable Energy Generation, and Distributed and Bulk Energy Storage Systems

NSF
\$2,000,000 JANUARY 2012 – NOT FUNDED
PI: I. HUSAIN

Research is proposed herein on electrified transportation with zero emission vehicles powered by energy obtained from renewable sources. The goal is to determine a sustainable transportation pathway utilizing the immense energy available in the tides, waves, currents and winds. This will contribute to comprehensive offset of fossil-based grid energy and conserving the planet’s life support systems for the present and future generations. By moving generation assets offshore?but close to demand centers?the amount of transmission required to meet growing electricity demand will be reduced. The multidisciplinary team for this project proposes the development of renewable energy conversion, with a focus on wave energy generation, storage, and fast charging as a means to enable electrified transportation.

CPS: Synergy: Collaborative Research: Spatio-Temporal Modeling and Optimization for Smart Grid Networks

NSF
\$1,290,000 MARCH 2012 – NOT FUNDED
PI: M. DEVETSIKIOTIS

The overarching objective of this project is to develop spatio-temporal models for power demand, together with a coupling of the physical layer with the communications layer that transmits customer preferences. The system under consideration is large scale and possesses inherently both “cyber” (economics, communications and control), as well as “physical” (power generation and distribution) aspects. The end goal is to capture at the appropriate levels of spatial and temporal scales the characteristics of this cyber-physical system and enable through the coupling of the physical with the communications layers to control it and achieve desired performance goals.

Evaluation of a Virtual Game for Weight Management in Obese Children

NIH
TOGETHER WITH UNC-CH MEDICAL SCHOOL
\$1,628,000 MARCH 2012 – NOT FUNDED

Our proposed activity revolves around the use of and innovation in new advanced technologies, namely the Kinect platform and the related software drivers, advanced social media platforms, location aware wireless social games, and 3D virtual world environments. Our goals are: (1) to research the design, implementation and use of such a platform and its impact on health outcomes; (2) to contribute to the science of computing and communication systems by establishing measurable, quantitative relationships between specific technical design factors and health (or wellness) effects and outcomes.

Joint Computing, Communication and Energy Control: Towards a Smart Appliance for a Smarter Campus

IBM FACULTY AWARD

\$40,000 FEBRUARY 2012 – FUNDED WITH \$30,000

In this project we propose to work on algorithmic solutions to the combined real-time computing, communications and energy management in smart campus buildings. We will aim at packaging these algorithms into an appliance format and we will integrate with the ongoing “smarter campus” efforts, in collaboration with IBM and the FREEDM center, on NC State’s Centennial Campus, also leveraging the Intelligent Operations Center (IOC) software.

CPS: Synergy: Collaborative Research: Spatio-Temporal Modeling and Optimization for Smart Grid Networks

NSF CPS

\$1,290,241

PI: M. Devetsikiotis

Co-PI: Chakraborty, Aranya; George Michailidis, U. Michigan

Not funded

The overarching objective of this project is to develop spatio-temporal models for power demand, together with a coupling of the physical layer with the communications layer that transmits customer preferences. The system under consideration is large scale and possesses inherently both “cyber” (economics, communications and control), as well as “physical” (power generation and distribution) aspects. The end goal is to capture at the appropriate levels of spatial and temporal scales the characteristics of this cyber-physical system and enable through the coupling of the physical with the communications layers to control it and achieve desired performance goals.

Joint Computing, Communication and Energy Control: Towards a Smart Appliance for a Smarter Campus

IBM

\$30,000

PI: M. Devetsikiotis

Funded

In this project we propose to work on algorithmic solutions to the combined real-time computing, communications and energy management in smart campus buildings. We will aim at packaging these algorithms into an appliance format and we will integrate with the ongoing “smarter campus” efforts, in collaboration with IBM and the FREEDM center, on NC State’s Centennial Campus, also leveraging the Intelligent Operations Center (IOC) software.

Integrated Virtual and Social Platform for Prevention of Obesity

NSF

PI: M. Devetsikiotis

Co-PI: Laurie Williams and R. Michael Young, CSC

\$1,600,000

Not funded

Our proposed activity revolves around the use of and innovation in new advanced technologies, namely motion gaming interfaces (e.g., those enabled by the Nintendo Wii or the Microsoft Xbox 360 Kinect) and the related software drivers, advanced social media platforms, location aware wireless social games, and 3D virtual world environments. Our aim is: (1) to design and implement an integrated, open source avatar platform for real time interventions, targeting health outcomes (e.g., change in a patient’s Body Mass Index); (2) to contribute to the engineering of the computing and communication infrastructure by measuring systematically the effect of specific technical design factors on health outcomes. We propose to implement a combined software and hardware platform that will span these three complementary technologies. We propose to build and explore a proof of concept based on using this combined platform for the prevention of obesity in

children, in collaboration with the Medical School at UNC-Chapel Hill. Our integrated platform will serve as a social connectivity umbrella and as a crucial enabler of real-time intervention activities, as described elsewhere in this proposal.

SRN: Multi-Agent Environment for Science, Technology and Research Opportunities in Sustainable Energy

NSF CISE

PI: David Cartes, Florida State (multiple universities involved)

Not funded

This pre-proposal presents a Sustainability Research Network (SRN) to the National Science Foundation entitled *Multi-Agent Environment for Science, Technology and Research Opportunities in Sustainable Energy (MAESTRO)* and focuses comprehensively on computational approaches for the efficient and profitable design and realization of sustainable energy systems, and the building of extensive research capacity in this area.

SEP: A Sustainable Electrified Transportation Pathway Based on Renewable Energy Generation, and Distributed and Bulk Energy Storage Systems

NSF ENG

PI: Iqbal Hussain (Michael Devetsikiotis was co-PI)

\$2,000,000

Not funded

The multidisciplinary team for this project proposes the development of renewable energy conversion, with a focus on wave energy generation, storage, and fast charging as a means to enable electrified transportation. The research aims to i) identify the optimal wave energy generation and storage techniques, ii) develop pieces for fast charging infrastructure for both stationary and roadway vehicles, iii) develop communication control networks and algorithms for the pathway, and iv) establish the requirements for environmental and economic sustainability to ensure that the energy needs of electrified transportation are met from renewable energy sources. To improve the dispatchability of the intermittent renewable sources, the team will investigate the technical and economic feasibility of ocean-based compressed energy storage

Evaluation of a Virtual Game for Weight Management in Obese Children

NIH

PI: Michael Devetsikiotis (subcontract to lead project at UNC-CH Medical School)

Co-PI: Laurie Williams and R. Michael Young (CSC)

06/01/2012 – 05/31/2017

\$1,628,662

Not funded

Our proposed activity revolves around the use of and innovation in new advanced technologies, namely the Kinect platform and the related software drivers, advanced social media platforms, location aware wireless social games, and 3D virtual world environments. Our goals are: (1) to research the design, implementation and use of such a platform and its impact on health outcomes; (2) to contribute to the science of computing and communication systems by establishing measurable, quantitative relationships between specific technical design factors and health (or wellness) effects and outcomes.

CPS: Medium: Collaborative Research: A Spatio-Temporal Modeling Framework for Cyber-Physical Implementation of Smart Grid Networks

NSF CISE

PI: M. Devetsikiotis (with A. Chakraborty and S. Bhattacharya; collaborative with the U. of Michigan)

\$1,270,885

Not awarded

09/01/2011 – 08/30/2015

We propose a hierarchical, multi-level modeling framework involving a cyber-physical view of smart grid distribution. At the macro level, we propose coupling topology identification with physical modeling, combined with temporal analysis. At the micro level, we study the cyber-physical control of hybrid vehicle charging stations, viewed as a coupled system, together with the vehicles involved as well as the computing, communication and control network entailed in the “smart” operation of this grid. Also, at the micro level, we propose to describe coupled cyber-physical mechanisms involving market incentives jointly formulated with communications strategies, whereby physical (energy) flows are coupled with cyber (communications network) controls.

Modeling the Impact of Emerging Traffic Patterns on the Design of Aggregation Architectures

PI: Mihail Devetsikiotis

Agency: Time Warner Cable

Amount: \$20,000

Current

Duration: 01/01/2011 – 12/30/2011

Brief Description: The goal is to build service-rich, cost effective and robust environments that would be extremely scalable, but also versatile enough, to accept the transformations resulting from the introduction of *emerging traffic and usage patterns*. The main challenges include non-stop delivery, service flexibility, policy management and reduced risk. For this reason, we try to identify the appropriate *architectural approach* and *sizing model* for the aggregation network, based on the next generation traffic patterns.

Modeling the impact of fixed-mobile converged broadband aggregation architectures on service provider capital expenditures

PI: Mihail Devetsikiotis

Cisco University Research Program

\$100,000

Not awarded

09/01/2011 – 08/30/2013

We are proposing a three-pronged approach, covering namely, (1) the effect of the characteristics of the 4G mobile traffic, on the design of the Mobile Aggregation Architectures, (2) the optimum placement of the caches and application networks as part of the aggregation architecture, (3) the architectural effects on the Quality of Experience of the mobile client.

NeTS: Small: Collaborative Research: A Modeling Framework for Networked Socio-Technical Systems

NSF CISE

PI: M. Devetsikiotis (collaborative with The U. of Michigan)

\$259,432

Not awarded

09/01/2011 – 08/30/2014

We propose to develop the necessary modeling framework that directly incorporates service requirements induced by the techno-social interaction of users mediated by networked systems, virtual collaboration environments and “smart grids”. We introduce an integrated framework that incorporates techno-social interaction measures into resource allocation problems leading to a joint optimization formulation that enlarges the scope of such problems into a new dimension stemming from the technical and social interactions.

IDEA Grant: Networked 3D Virtual Collaborative Environments: Network Systems Education Co-Laboratory

NC State Delta
Mihail Devetsikiotis, Mitzi Montoya
\$8,000
08/16/2009 – 05/15/2010

Collaborative Research: VOSS: Linking Collaborative Virtual Presence and Performance: Scale Development and Validation

Mitzi Montoya (PI), Mihail Devetsikiotis
NSF OCI – Virtual Organizations
\$127,000
09/15/2009 – 08/30/2010

Virtual Collaboration Environments: Socio-Technocal Resource Allocation for Scalable Performance of the Collaborative Web

Mihail Devetsikiotis, Mitzi Montoya
CACC (supported through two IBM Faculty Awards)
\$30,000
07/01/2009 – 06/30/2010

Network Visualization and Optimization through Accurate Traffic Characterization

Mihail Devetsikiotis, Harry Perros
CACC – Core
\$40,000
07/01/09 – 06/30/2010

Modeling Broadband Aggregation Architectures for Emerging and Future Traffic Patterns

Mihail Devetsikiotis
Cisco University Research Program
\$80,000
09/01/2008 – 05/30/2010

Networked 3D Virtual Computing for Collaborative Environments in Science and Education: Towards VCL 3.0

Mihail Devetsikiotis, Mitzi Montoya
CACC – Core
\$40,000
07/01/2008 – 06/30/09

Achieving Communication Scalability Collaborative Development Tools

Mihail Devetsikiotis
IBM Rational Faculty Award
\$20,000
08/1/2008 – 07/31/2009

Research Experiences for Undergraduates in the ECE Department (REU)

Mehmet Ozturk, Mihail Devetsikiotis

NSF

\$315,000

09/01/2007 – 08/30/10

Supporting Pair Programming and Virtualization of the Jazz Development Environment

Laurie Williams, Mihail Devetsikiotis

IBM Jazz Faculty Award

\$25,000

02/1/2008 – 01/31/2008

Virtual Computing Lab: Monitoring for Predictive Scheduling and Scalable Provisioning

Mihail Devetsikiotis, Ioannis Viniotis

CACC – Core

\$40,000

07/01/2007 – 06/30/08

IBM On Demand Testbed: Monitoring for Performance

Mihail Devetsikiotis

IBM

\$30,000

09/2006 – 08/2007

Design and Performance of Network Services

Mihail Devetsikiotis, Ioannis Viniotis

IBM

\$50,000

09/2006 – 08/2007

Performance and Testing of SIP Over Wireless Mesh Networks

Mihail Devetsikiotis, Mihail L. Sichitiu

Nortel Networks

\$40,000

01/01/07 - 12/31/07

Performance Study of Pooled External Storage

Mihail Devetsikiotis, Ioannis Viniotis

Tekelec

\$30,000

01/15/07 – 06/30/07

On Demand Testbed: Monitoring For Capacity Planning and Performance Optimization

Mihail Devetsikiotis, Ioannis Viniotis

CACC - Core

\$40,000

07/01/06 - 06/30/07

Software Capacity Planning and On Demand Testbed

M. Devetsikiotis
IBM
\$30,000
09/2005 – 08/2006

Engineering Rules for IMS Signaling

Y. Viniotis and M. Devetsikiotis
Tekelec (CACC enhancement)
\$100,000
09/2004 – 08/2005

The Impact of Cross-Layer Control on Service Availability in Public Access Wireless Networks

M. Devetsikiotis and Wenye Wang
CACC – Core
\$40,000
07/2004 – 06/2005

Authentication and Service Management in Heterogeneous Mobile Environments

M. Devetsikiotis and Wenye Wang
CACC – Core
\$50,000
07/2003 – 06/2004

Adaptive Resource Management in MPLS Networks

M. Devetsikiotis
CACC – Core
\$50,000
07/2002 – 06/2003

Performance of Active Queue Management Schemes in IP Networks

J. K. Townsend, M. Devetsikiotis
CACC – Core
\$75,000
07/2002 – 06/2003

Traffic Shaping and Self-Sizing for Next-Generation Terabit Router Networks

M. Devetsikiotis
Alcatel
\$200,000
10/2001 – 12/2003

Performance Evaluation of E-Commerce Applications over IPv6 Networks

M. Devetsikiotis, Harry Perros and George Rouskas
IBM University Partnerships Program
\$40,000
07/2001 – 06/2002

Adaptive Resource Management in MPLS Networks

M. Devetsikiotis
CACC – Core
\$63,000
07/2001 – 06/2002

Performance of Active Queue Management Schemes in IP Networks

M. Devetsikiotis and J. K. Townsend
CACC – Core
\$100,000
07/2001 – 06/2002

EXTERNAL GRANTS (AT CARLETON UNIVERSITY, 1994 – 2001, CANADIAN FUNDS)

Self-sizing of High-Speed Networks

M. Devetsikiotis
Nortel Networks
\$60,000
10/1/1998 - 9/30/2001

Efficient Methodologies for Modeling and Design of High-Speed Networks

M. Devetsikiotis
Natural Sciences and Engineering Research Council (Canada)
\$140,000
4/1/2000 - 3/30/2004

Complex Adaptive Networks for Computing and Communication (CANCCOM)

M. Devetsikiotis, I. Lambadaris, E. Kranakis
Mathematics for Information Technology and Complex Systems (MITACS), under the Federal Networks of Centers of Excellence (Canada)
\$360,000
4/1/1999 - 6/30/2001

Modeling and Simulation for the iPT Control Access Protocol (IEEE 802.17)

M. Devetsikiotis and C. Huang
Nortel Networks
\$105,000
12/1/2000 - 11/30/2001

Designing Complex Communication Networks: Modeling, Analysis and Algorithmic Methods

M. Devetsikiotis
Communications and Information Technology Ontario (CITO)
\$100,000
08/1998 – 07/2000

Efficient Statistical Methodologies for Performance Analysis

M. Devetsikiotis
Natural Sciences and Engineering Research Council (NSERC)
\$98,000
1996 – 03/2000

Catastrophe Theory

M. Devetsikiotis and I. Lambadaris
Nortel Networks
\$50,000
09/1997 – 08/1999

Interconnected Networks for Multimedia Traffic

M. Devetsikiotis and I. Lambadaris
Telecommunications Research Institute of Ontario (TRIO)
\$157,000
04/1997 – 03/1998

Traffic Modeling of Self-Similar Video

M. Devetsikiotis
Agency: Carleton University
\$2,500
04/1996 – 03/1997

Synthetic Traffic Generators and Fast Simulation of a Switching Architecture

M. Devetsikiotis
Newbridge Networks
\$28,000
04/1996 – 03/1997

Traffic Models for ATM Networks

M. Devetsikiotis, I. Lambadaris
SPAR Aerospace
\$25,000
09/1996 – 08/1997

EXTERNAL EQUIPMENT OR SUPERCOMPUTING ACCESS GRANTS

On Demand Testbed: Monitoring for Performance

M. Vouk, M. Devetsikiotis, Y. Viniotis, V. Freeh
IBM
\$125,000
01/2006 – 12/2006

INTERNAL GRANTS AT NC STATE

New faculty startup funds

M. Devetsikiotis
ECE Department
\$50,000
01/2001 – 09/2003

C. ORGANIZATION PARTICIPATION

Participation in centers, consortia, institutes, interdisciplinary/multidisciplinary activities and other organized scholarly efforts between departments within and across colleges or institutions

1. As Director of Graduate Programs, Dr. Devetsikiotis has been the Director of graduate programs in the ECE department since January of 2011. In this capacity he has been responsible for the every-day operations as

well as the strategy for our programs, development and recruiting. With over 500 Masters and 250 PhD students, four Masters and two PhD degrees, we are the largest program at NC State and one of the few largest in the country.

2. He has been participating in the departmental leadership, working closely with the Head and the Associate Head on departmental strategy, interacting with the ECE Advisory Board, presenting to industry, and representing the department in numerous ways, inside and outside the university. In recent years, he has also been a member of the NC State Faculty Senate and the Chair of the College of Engineering graduate studies committee.
3. Among his contributions, a seminal moment was his role in conceiving, proposing and administering the ECE Premium tuition, which has been a game-changer for our department, allowing a significant income source of close to \$2M annually, which ECE uses for graduate fellowships, financial aid, faculty salaries, teaching assistantships, office salaries and overall graduate program development. He has also played an important role in expanding ECE graduate programs, increasing the staff in our office, upgrading our physical space, initiating recruiting campaigns, and modernizing ECE governance processes.
4. Dr. Devetsikiotis was a principal investigator in TRIO (Telecommunications Research Institute of Ontario, Canada) and its successor, CITO (Communications and Information Technology Ontario, Canada) between 1996 and 2000. TRIO/CITO is a government, industry, university sponsored research center of excellence involving faculty from Computer Science and Electrical & Computer Engineering from across the Canadian province of Ontario.
5. Dr. Devetsikiotis was a founding member of MITACS (Mathematics for Information Technology and Complex Systems), a Federal Network of Centers of Excellence (Canada), in 1999. This multi-disciplinary research effort involved mathematicians, computer scientists, biologists, statisticians, economists and electrical engineers from across Canada. Research sponsored by federal funding agencies, industry and university, focuses on three types of complex systems, namely, bio-mathematical systems, financial math and information technology/computer network. During the Fall of 1998, Dr. Devetsikiotis was a co-founder and later Director of the Center for Advanced Studies in Computing and Communication (CASCC) at Carleton University. This University inter-disciplinary “organized research unit” (ORU) included faculty from Mathematics/Statistics, Computer Science, Electrical and Computer Engineering, with common research interests in the areas of the convergence of computing and communication and the modeling and analysis of complex information systems.
6. In the Fall of 2003 and the Spring of 2004 Dr. Devetsikiotis participated in the meetings, planning and research activities of the Statistical and Applied Mathematical Sciences Institute (SAMSI) based at the National Institute of Statistical Sciences (NISS). This group collaborates with professors from UNC-CH and Duke in combining advanced statistical methods to the analysis and prediction of high speed networks and their traffic. The group submitted a pre-proposal towards an NSF IGERT award based on the inter-disciplinary collaboration between statisticians, mathematicians, and computer scientists/engineers.
7. Since 2001 Dr. Devetsikiotis has been a principal investigator in CACC, the Center for Advanced Computing and Communication. This is an NSF, industry, government, university sponsored research center, which involves faculty in the Computer Science and ECE Departments at NC State, and Electrical Engineering at Duke University.
8. Dr. Devetsikiotis maintains active collaboration with Professor Nelson Fonseca in the State University of Campinas, Brazil, and with Professor Fabrizio Granelli at the University of Trento. Dr. Devetsikiotis continues a cross-disciplinary collaboration with Professor George Michailidis of the Department of Statistics, University of Michigan, Ann Arbor.

III. TEACHING AND MENTORING OF UNDERGRADUATE AND GRADUATE STUDENTS

A. TEACHING EFFECTIVENESS

1. Courses Taught

List courses taught, with an evaluation of teaching effectiveness, including a summation of data from student evaluations for the past three years and summary of available peer evaluations.

Course	When taught	Enrollment	Q8 (new 9):	Q15 (new 14):
			Overall Effectiveness	Course quality
			Avg./Dept Avg.	Avg./Dept. Avg.
ECE 595/495 Networking Services	S 18	7		
ECE 495/595 Cloud Computing	S17, S18	21		
ECE 540 Advanced Networks	F 18	8		
At NC State:				
ECE 220	S10	60	3.2/4.3	3.0/4.2
ECE 220-DE	S10	11	2.6/4.3	3.8/4.2
ECE/CSC 576	F09	60	3.8/4.3	4.0/4.3
ECE/CSC 576-DE	F09	4	4.5/4.3	4.5/4.3
ECE 220	F09	79	2.5/3.9	2.6/3.9
ECE 220	S09	58	2.9/4.1	3.0/4.0
ECE 220-DE	S09	11	2.3/4.1	3.0/4.0
ECE/CSC 776	S09	22	4.5/4.1	4.3/4.0
ECE/CSC 776-DE	S09	5	4.0/4.2	4.3/4.2
ECE/CSC 576	F08	65	4.0/4.3	3.9/4.2
ECE/CSC 576-DE	F08	9	4.3/4.3	4.2/4.2
ECE/CSC 776-601 (DE)	S08	10	4.75/4.02	5.00/3.94
ECE/CSC 776	S08	23	4.00/4.02	4.00/3.94

ECE/CSC 576	S08	63	3.92/3.97	3.97/3.94
ECE/CSC 776	S07	14	4.1/4.03	4.1/3.94
ECE/CSC 576	S07	20	3.6/3.93	3.73/3.72
ECE/CSC 776	S06	9	4.2/4.1	3.8/4.0
ECE/CSC 576	S06	25	3.9/4.1	3.9/3.95
ECE/CSC 776	S05	19	4.4/4.1	4.2/4.0
ECE/CSC 576	S05	33	3.6/4.1	3.6/4.1
ECE 776	S04	18	4.4/4.1	4.2/3.9
ECE 576	S04	30	4.4/4.1	4.2/3.9
ECE 776	S03	12	3.9/4.0	3.9/3.8
ECE 576	S03	35	4.0/4.0	3.7/3.8
ECE 776	S02	15	4.4/4.1	4.6/3.9
ECE 576	F01	53	3.5/4.0	3.2/3.7
ECE 407	S01	49	3.5/4.0	3.5/3.7

2. ECE Peer Review of Teaching Summary (entered Fall 2005):

The following process was used to generate this report. The ECE Peer Review of Teaching Committee: 1) gathered student evaluation data; 2) assigned a committee member to complete an in-classroom observation check list and a course material checklist with comments, and; 3) gathered information regarding the candidate's contributions to the teaching function of the department. The checklists were developed based on a study and by recommendations from Dr. Felder, an expert in engineering education. A summary of this material is given below. The raw data and detailed comments are available on file.

Dr. Devetsikiotis has taught several different courses since his arrival to NC State in 2001. He has taught one undergraduate and two different graduate courses. His average student evaluation score for "overall effectiveness" is 4.0, approximately the department average.

His peer evaluation score for his lectures and course materials are 4.6/5.0 and 4.8/5.0, respectively. The peer evaluation was conducted during the Fall 05 semester (ECE 570). The evaluator found that Dr. Devetsikiotis lecture was clear and he has asked students stimulating questions. He presented material using well-organized Powerpoint notes that were effectively supplemented by comments and illustrations written on the board. A minor suggested improvement is to ask students more specific questions to motivate classroom discussion. The evaluator has examined course material for several courses (primarily ECE 576) and found that it is well organized and detailed. Course information and expectations are clearly stated and well motivated. All materials are posted on the web. There were no suggested improvements.

Dr. Devetsikiotis has completely revised two graduate courses in networking and was wholly responsible for updating the laboratory for several networking courses. He has led the in-depth five-year review of the Master's in Computer Networking program. He has taken a lead in identification of strategic directions for curricula related to information networks. This effort has led to creation of the curriculum for "services science, management and engineering" (SSME) in collaboration between NC State and industry, e.g. IBM and HP.

Dr. Devetsikiotis is currently chairing one MS and five PhD committees. He was the advisor of two PhD and two MS students that have received degrees. In addition, he has served on the committees of 22 other graduate students at NC State. He has supervised two undergraduate students at NC State and hosted two international undergraduate scholars. Moreover, Dr. Devetsikiotis had significant teaching and advising record at Carleton University, and he has served on several committees at other Universities.

B. INSTRUCTIONAL DEVELOPMENT

Include innovations in courses and curricula.

COURSE CONTRIBUTIONS AT UNM

1. Introduced a new course on "Networking Services and QoS", for seniors and graduate students.
2. Introduced new course on Cloud Computing together with PhD grad and collaborator from Purdue and Netflix, Dr. Ioannis Papapanagiotou.

COURSE CONTRIBUTIONS AT NC STATE

1. While on sabbatical in Italy and Greece (Fall 2010), I continued a multi-year effort to study the use of virtual collaboration technologies in teaching and remote instruction. With support from EOL, and Delta, my team continued the comparisons of virtual world platforms. While in Europe, I taught a course at the University of Trento, Italy, and utilized virtual technologies for instruction and remote office hours.
2. Continued to introduce virtual collaboration technologies to ECE 776, ECE 576 and ECE 220. With support from EOL, and Delta, he has been trying and comparing virtual world platforms, and has been conducting trials with virtual office hours, virtual TA sessions, virtual Matlab co-laboratories and virtual instruction in Opnet network simulations and Cisco network emulators. The "VCL 3.0" project has had funding from CACC, Delta, EOL and has included in-class trials and post-experiment surveys, in collaboration with the College of Management.
3. Revised and adapted ECE/CSC 776 for first time on-line, distance education delivery in the Spring of 2008. Feedback was very encouraging as we were given a 4.75 for effectiveness and a perfect 5.0 for course quality.
4. Completely revised, updated and extended the laboratory exercises for ECE 576 to include hands-on problems in Multi-Protocol label Switching (MPLS).
5. Restructured and modernized the material in ECE 776 to reflect the more recent research and standards developments in scheduling techniques, admission control, pricing/charging, and Internet economics.

6. Supervised the development of OPNET-based laboratories, exercises and term projects for the Networking courses, specifically ECE 570, ECE 576 and ECE 776.
7. Planned and supervised the establishment of simulation computer laboratory in Daniels 336, to allow ECE 407, ECE 576 and ECE 776 students to practice and perform laboratories in modeling and simulation exercises using OPNET, ns2 and other simulation software.

CURRICULUM CONTRIBUTIONS AT THE UNIVERSITY OF NEW MEXICO

1. Led the development of two new online Master's concentrations, namely a EE concentration in "Space Systems Engineering", and a CPE concentration in "Internet of Things". This included recruiting several faculty to record classes in a new 8-week format, scheduling of classes, approvals of the individual classes and of the whole program, marketing, recruiting and administration.

CURRICULUM CONTRIBUTIONS AT NC STATE

1. Funded by Engineering on Line, Dr. Devetsikiotis continued to study the use and effect of virtual world technology on distance education courses in the year 2009-10. Obtained new funding from the Center for Advanced Computing and Communication (CACC) and from EOL to continue to study networked, 3D virtual collaboration for teaching, during the summer of 2008. Continued trials with thee VCL, Elluminate, Vista, Sun Wonderland, Second Life, Qwaq and Protosphere during the Fall of 2008 and Spring of 2009, in ECE 576 and ECE 220.
2. Since the start of 2005, Dr. Devetsikiotis has lead the in-depth five-year review of the Master's in Computer Networking program. This process involves consulting faculty and gaining input from industry, in order to clarify course objectives and procedures, to ensure that the academic and professional standards of the next generation of graduates is met.
3. Dr. Devetsikiotis' broader effort is the identification of strategic directions for curricula related to information networks, enterprise integration and service engineering. The latter is attracting much attention from giants like IBM and HP. Service engineering has been identified by these major corporations as a strategic area of growth and future profit. These companies are currently working with NC State to investigate "services science, management and engineering" (SSME), to help identify strategic research and educational projects that will attract research funding at both the State and the Federal level. Dr. Devetsikiotis has taken the lead in developing a curriculum for the growing field of SSME. He has been instrumental in liaising with these major corporations, defining policy for SSME, and generally putting NC State at the heart of strategic decision making with regard to the implementation of SSME.
4. In the years 2001-2002 Dr. Devetsikiotis was a member of the ECE curriculum committee - discussing problem sessions and specialization areas. He also participated in the ECE strategic planning meetings (academic).
5. Dr. Devetsikiotis was wholly responsible for the developed of OPNET laboratories and projects. He collaborated with Networking faculty in both ECE and CSC to establish prerequisites, appropriate simulation training, and hands-on modeling laboratories, for the major CNE/CNC (Master's in Computer Networking) program.

CURRICULUM CONTRIBUTIONS AT CARLETON

1. Dr. Devetsikiotis was a main contributor, one of a number of proposers, for a new Executive Master's program entitled: "Masters in Internet Technologies", to be jointly administered by the University of Ottawa and Carleton University.
2. As Associate Chair for Undergraduate Studies in the Department of Systems and Computer Engineering, Dr. Devetsikiotis played a central role in launching a new Bachelor's of Engineering in Communications Engineering course, and improving the curriculum of all programs offered by the SCE department at Carleton.
3. I participated regularly in the Academic Planning Committee for the Faculty of Engineering at Carleton University.

COURSE CONTRIBUTIONS AT CARLETON UNIVERSITY

1. Dr. Devetsikiotis developed a new version of 94.581Y, Advanced Topics in Communication Systems, based on student projects, presentations and visiting lecturers.

2. Dr. Devetsikiotis developed laboratory exercises for 94.462, Introduction to Computer Communications, based on the simulation software COMNET.
3. Dr. Devetsikiotis developed laboratory exercises for 94.405/501, Introduction to Modeling and Simulation, based on the simulation languages SIMSCRIPT II initially and MODSIM III later.
4. Dr. Devetsikiotis co-supervised the establishment of an Asynchronous Transfer Mode laboratory donated to Carleton University by Newbridge Networks, and participated in the development of laboratory exercises for this lab (intended for use by undergraduate and graduate students in Computer Networking).

TEXTBOOKS AND LABORATORY MANUALS

Matthias Falkner, Ioannis Lambadaris and Michael Devetsikiotis, “Communication Networks: Principles and Simulation Practice”, manuscript proposed for publication to Prentice-Hall. This book contains a series of communication networks laboratory experiments accompanied by explanations/interpretations of the corresponding theoretical foundations. The laboratories are based on COMNET, a leading software network simulation package. An introductory tutorial on how to use COMNET is included. Students are not required to have previous programming experience, however familiarity with the PC windows environment is desirable.

C. MENTORING ACTIVITIES

Include undergraduate academic advising and assessments thereof, if applicable, graduate committees, postdoctoral advising, advising student organizations, special projects with students, and Department of Public Instruction assessments of supervising student teaching.

GRADUATE COMMITTEES (at UNM):

Student name	Degree (defense)	Chairman	Member
Dimitris Sikeridis	Ph.D.	*	
Alireza Ghasempour	Ph.D.	*	
William Stout	Ph.D.	*	
Panayioti Kitsos	M.S.	*	

GRADUATE COMMITTEES (at NCSU):

Student name	Degree (defense)	Chairman	Member
Konstantinos Christidis	Ph.D. CPE	*	
Cuiyu Kong	Ph.D. CPE	*	
Shalini Chauhan	Ph.D. CPE (to MS 2014)	*	
Daehyun Ban	Ph.D. CPE (2012)	*	
Boonyarith Saovapakhiran	Ph.D. CPE (2013)	*	
I. Safak Bayram	Ph.D. CPE (2013)	*	
Ioannis Papapanagiotou	Ph.D. CPE (2012)	*	
Vineet Kulkarni	Ph.D. CPE (2012)	*	
Michalis Kallitsis	Ph.D. CPE (2010)	*	
Georgios Plitsis	Ph.D. (withdrawn 05/08)	*	
Robert Callaway	Ph.D. (2008)	*	
Vladica Stanisic	PhD. (2005)	*	
Peng Xu	Ph.D. (2005)	*	
Jie Hui	Ph.D. (2005)	*	
Srikant Nalatwad	Ph.D. (2006)	*	
Bobby M. Ninan	Ph.D. (2004)	*	
Chi-Chieh Hsu	Ph.D. (2007)	*	
Carmela Cozzo	Ph.D. (2001)		*
Lisong Xu	Ph.D. (2001)		*
Jangeun Jun	Ph.D. (2006)		*

Phoemphun Oothongsap	Ph.D. (2004)		*
Reda Haddad	Ph.D. (2006)		*
Ozdemir Akin	Ph.D. (2004)		*
Shawqi Kharbash	Ph.D. CPE (2011)		*
Hongyan Lei	Ph.D. (2005)		*
Kamala Subramaniam	Ph.D. (2006)		*
Nicki Washington	Ph.D. (2005)		*
Indraneel Kelkar	Ph.D.		*
Sean Xiang Zhou	Ph.D. (2006)		*
Wei Liang	Ph.D. (2005)		*
Xenia Mountrouidou	Ph. D. (2007)		*
Yuh-Ming Chiu	Ph. D. (2009)		*
Shuang Hu	Ph. D. (2008)		*
Thor Thorolsson	Ph. D. (2011)		*
Ming Zhao	Ph. D. (2009)		*
Fei Xing	Ph. D. (2008)		*
Shawqi Kharbash	Ph. D. (2013)		*
Mradula Neginhal	Ph.D. CSC		*
Han Cai	Ph.D. CPE (2010)		*
Zyad Zweekat	Ph.D. CSC (2009)		*
Wenhong Tian	Ph.D. CSC (2007)		*
Heng Xia	Ph.D. CPE (2011)		*
Kaiqi Xiong	Ph.D. CSC (2008)		*
Chris Taggart	Ph.D. EE (2008)		*
Ning Liu	Ph.D. CSC (2009)		*
Keerthana Baloor	Ph.D. CPE (2012)		*
Meyiappan Nagappan	Ph.D. CSC (2011)		*
Lei Sun	Ph.D. CPE		*
Huan Luo	Ph.D. CPE		*
Zhuo Lu	Ph.D. CPE (2013)		*
Chi Yi	Ph.D. CPE		*
Yuan Zhang	Ph.D. ORE (2012)		*
Bushra Anjun	Ph.D. CSC (2012)		*
Yongchul Kim	Ph.D. CPE (2011)		*
Yujin Li	Ph.D. CPE		*
Xin Xu	Ph.D. CPE		*
Fengyuan Gong	PhD CPE		*
Hong Xiong	PhD CPE		
Megan Becvarik	MS CPE	*	
Chunxue Yang	MS CPE (2014)	*	
Yun Wang	M.S. CPE (2014)	*	
Ahsanur Rashid	M.S. (2012)	*	
Shalini Chauhan	M.S. (2011)	*	
Umang Chaudhury	M.S. (2010)	*	
Nilesh Gavaskar	M.S. (2010)	*	
Deepti Phadnis	M.S. (2010)	*	
Prakhyath Makam	M.S. (withdrawn 2009)	*	
Chaitanya Godbole	M.S. (2008)	*	
Sai S. Oruganti	M.S. (2004)	*	
Fatih Haciomeroglu	M.S. (2003)	*	
Nisha Rajagopal	M.S. (2006)	*	
Remya Krishnamoorthy	M.S. (2008)		*
Pradeep Salla	M.S.		*
Sajidul Rahman Ayyar	M.S. (2002)		*
Khurram Matin Khan	M.S. (2001)		*
Vishwas S. Puttasubbappa	M.S. (2005)		*
Ozdemir Akin	M.S. (2002)		*
Ratnakar V. Jonnadula	M.S. (2004)		*
Asavari Thombare	M.S. (2005)		*

Mradula Neginhal	M.S.		*
Mohit Sood	M.S. (2006)		*
Savitha Sridharan	M.S. (2006)		*
Chintan Desai	M.S. (2005)		*
Nader Shinouda	M.S. (2005)		*
Zyad Zweekat	M.S. (2005)		*
Savera Tanwir	M.S.		*
Mursalin Habib	M.S. (2009)		*
Keerthana Baloor	M.S. (2009)		*
Annesha Bophana	M.S. (2011)		*
Aditya Ambadkar	M.S. CPE (2013)		*
Brian Bouterse	Ph.D. CSC		*
Mingkui Wei	Ph.D. CPE		*
Savera Tanwir	Ph.D. CSC		*

GRADUATE COMMITTEES (at Carleton University):

Student name	Degree (defense)	Chairman	Member
Benjamn Feng	Ph.D. (2009)	* (co-chair)	
Benjamin Feng	M. Eng. (2004)		*
Yan Robichaud	M. Eng. (2004)		*
Houjin Li	M. Eng (2004)		*
Baohua Zhang	M.S. (2005)		*
Changcheng Huang	Ph.D. (1997)	*	
Matthias Falkner	Ph.D. (2000)	*	
Tao Wan	Ph.D. (1999)	*	
Melanie Fortin	M. Eng. (2000)	*	
Nabil Seddigh	M. Eng. (2001)	*	
Mandeep Baines	M. Eng. (2002)	*	
Wentao Shen	M. Eng. (2002)	*	
Benjamin Feng	M. Eng. (2004)	*	
Houjin Li	M. Eng. (2004)	*	
Kevin Chafe	M. Eng. (2000)	*	
Hamid Syed	M. Eng. (1999)	*	
Wen Zhao	M. Eng. (1998)	*	
Jianmei Chen	M. Eng. (1997)	*	
Gerasimos Klaoudatos	M. Eng. (1997)	*	
Tarkan Taralp	M. Eng. (1997)	*	
Ming Leung	M. Eng. (1998)	*	
Dusan Mudric	M. Eng. (1998)	*	
Galina Dubrovina	M. Eng. (1999)	*	

As regular faculty at Carleton, and before his departure to NC State, Dr. Devetsikiotis participated in an **additional 25 graduate committees** and Master's/Ph.D. exams in the Departments of Systems and Computer Engineering, Mathematics, and Statistics. Dr. Devetsikiotis has also participated in graduate committees for the Department of Mathematics in the University of Ottawa and the Ottawa-Carleton Institute of Electrical and Computer Engineering.

GRADUATE COMMITTEES (elsewhere):

Student name	Degree [defense]	Co-Advisor	Member
Ran Dubin, Ben Gurion University, Israel	PhD (2017)		*
Timothy Neame, University of Melbourne, Australia	Ph.D. (2003)		*
Andre Drummond, State University	M.S. (2004),	*	

of Campinas, Brazil	Ph.D. (2009)		
Benjamin Feng, Carleton University, Canada	Ph.D.		*

SPECIAL PROJECTS WITH STUDENTS AT NC STATE

Advised several *Graduate* ECE and CSC students for *Special Topics* course work (ECE 633/634, CSC 630) including Andrew Williams, Guru Ranganathan, Konstantinos Benekos, Chaitanya Godbole, John Devidé Sena, Indira Pulla, Nilesh Gavaskar, Selvaganapathy Deepti Phadnis, Chidambaram, Frank Ramirez, Manisha Ankam, Shrikanth Chandrasekar, Yan Wang, Andrew Gossett, and Shalini Chauhan.

MENTORING OF JUNIOR FACULTY

Dr. Devetsikiotis has been very active in the mentoring of junior faculty including: (1) former student Changcheng Huang, now an Associate Professor at Carleton University, (2) the more junior members of the IEEE Technical Committee chaired by Dr. Devetsikiotis (Communication Systems Integration and Modeling), and (3) most importantly, junior members of the ECE Networking group, Wenye Wang and Do Young Eun. Currently at UNM, Michael is mentoring new assistant professor Eirini Eleni Tsiropoulou.

UNDERGRADUATE ADVISING AT NC STATE (2001-2015)

Dr. Devetsikiotis initiated and supervised several senior design teams during academic years 2011-12, 2012-13, 2013-14, 2014 and 2015.

Dr. Devetsikiotis initiated and supervised three senior design projects (nine students) during the academic year 2008-09, and two senior design projects (six students) during the year 2009-2010.

Dr. Devetsikiotis, as co-PI of an NSF funded REU program (research experiences for undergraduates), has been active in the recruiting of undergraduates from other universities who come to NC State for a summer to do research with ECE faculty. He has also been part of organizing their activities during their stay at NC State.

Dr. Devetsikiotis mentored Parks Scholar Kapish Aggarwal. He has attended Parks Scholar meetings, and he has assisted Kapish in finding summer research opportunities at NC State.

Between late 2001 and Fall 2003 Dr. Devetsikiotis supervised the project work of Robert Callaway, then junior in Computer Engineering. Mr. Callaway set up a Linux testbed for self-sizing in MPLS. Mr. Callaway has finished his Master's degree under Dr. Devetsikiotis' supervision and has been accepted into the ECE Ph.D. program.

Dr. Devetsikiotis hosted and supervised the IAESTE summer international exchange students Ioannis Fotiou (2002) and Juliano Notto (2003). This was a very successful experience both for the exchange students, who learned a lot about NC State, North Carolina and the U.S., but also for the Networking and Communications research group. Not only did the group benefit the research work completed by Mr. Notto, it is also highly likely that he will be recruited as a graduate student in the near future.

SENIOR DESIGN SUPERVISION AT CARLETON UNIVERSITY (1996 – 2001)

During the 1996-97, 1997-98, 1998-99, 1999-00 and 2000-01 academic years, I supervised a total of twenty two (22) 4th year students doing their senior projects in the Systems Engineering Department at Carleton University.

POST DOCTORAL SUPERVISION AT CARLETON UNIVERSITY (1996-2000)

Name	Sponsor	Research Area	Period
Bhaskar Rimal	UNM	Smart Grid, Smart Cities	06/17 – 05/18
Nikolai Laskin	MITACS, CITO	Traffic Modeling	1/00 – 4/02

Jiangbin Huang	MITACS	Performance Analysis of Networks	9/99 – 3/01
Kaushik Das	MITACS	Performance Analysis of Networks	1/99 – 9/99
Qi Hao	NSERC/Nortel	Optimal Self-Sizing of Networks	3/98 – 2/99
Sergei Grishechkin	Nortel/CI TO	Multistability and Catastrophe in Networks	10/97 – 3/00

D. MASTER'S AND DOCTORAL THESES DIRECTED AND BEING DIRECTED

Show numbers and dates in each category

During this period, Dr. Devetsikiotis has actively been directing the theses of three (3) Ph.D. students and one (1) Master's students; **he graduated zero (0) Ph.D. and zero (0) Masters student in 2017.**

Ph.D. (Total 24)

Student name	Degree (defense)
Dimitris Sikeridis	Ph.D.
Alireza Ghasempour	Ph.D.
William Stout	Ph.D.
<i>At NC State:</i>	
Kostantinos Christidis	Ph.D.
Cuiyu Kong	Ph.D. (2018)
Shalini Chauhan	Ph.D. (to MS in 2014)
Daehyun Ban	Ph.D. (2012)
Boonyarith Saovapakhiran	Ph.D. (2013)
I. Safak Bayram	Ph.D. (2013)
Ioannis Papapanagiotou	Ph.D. (2012)
Vineet Kulkarni	Ph.D. (2012)
Michalis Kallitsis	Ph.D. (2010)
Georgios Plitsis	Ph.D. (withdrawn 05/08)
Robert Callaway	Ph.D. (2008)
Chi-Chieh Hsu	Ph.D. (2007)
Srikant Nalatwad	Ph.D. (2006)
Peng Xu	Ph.D. (2005)
Jie Hui	Ph.D. (2005)
Vladica Stanisic	Ph.D. (2005)
Bobby M. Ninan	Ph.D. (2004)
<i>At Carleton University:</i>	
Benjamin Feng	Ph.D. (2009)
Matthias Falkner	Ph.D. (2000)
Tao Wan	Ph.D. (1999)
Changcheng Huang (co-chair)	Ph.D. (1997)

Masters (Total 27)

Student name	Degree (defense)
Panayioti Kitsos	M.S.
<i>At NC State:</i>	
Megan Becvarik	M.S. (2016)
Chunxue Yang	M.S. (2014)
Yun Wang	M.S. (2014)
Ahsanur Rashid	M.S. (2012)
Shalini Chauhan	M.S. (switched to PhD)
Umang Chaudhury	M.S. (2010)
Nilesh Gavaskar	M.S. (2010)
Deepti Phadnis	M.S. (2010)
Prakhyath Makkam	M.S. (withdrawn)
Chaitanya Godbole	M.S. (2008)
Nisha Rajagopal	M.S. (2006)
Sai S. Oruganti	M.S. (2004)
Fatih Haciomeroglu	M.S. (2003)
<i>At Carleton University:</i>	
Melanie Fortin	M. Eng. (2000)
Nabil Seddigh	M. Eng. (2001)
Mandeep Baines	M. Eng. (2002)
Wentao Shen	M. Eng. (2002)
Benjamin Feng	M. Eng. (2004)
Houjin Li	M. Eng. (2004)
Kevin Chafe	M. Eng. (2000)
Hamid Syed	M. Eng. (1999)
Wen Zhao	M. Eng. (1998)
Jianmei Chen	M. Eng. (1997)
Gerasimos Klaoudatos	M. Eng. (1997)
Tarkan Taralp	M. Eng. (1997)
Ming Leung	M. Eng. (1998)
Dusan Mudric	M. Eng. (1998)
Galina Dubrovina	M. Eng. (1999)

IV. EXTENSION AND ENGAGEMENT WITH CONSTITUENCIES OUTSIDE THE UNIVERSITY

A. ACCOMPLISHMENTS

List accomplishments as applicable, e.g., bulletins, brochures, reports, pamphlets, non-refereed publications, computer software, educational videotapes, slide sets, popular press articles, and other pertinent evidence.

ENGAGEMENT AT CARLETON UNIVERSITY

1. Participated in Engineering Open House each year, and presented overview of department to prospective students and parents.
2. Represented Carleton University and the SCE Department in the Toronto University Fair in 1998 and 1999. Made presentations on behalf of the department and the faculty of engineering.

ENGAGEMENT AT NC STATE

1. Participated in numerous external engagement efforts such as visits by Microsoft, Xerox, Cisco, IBM, High Performance Computing Innovation Center.
2. Serving in leadership role as Director of graduate programs, participating in the semiannual meetings of the ECE Advisory Board composed mainly from industrial members, but including academics as well.
3. Served in leadership roles of ECE open house, recruiting, and external relations (spend a day in Engineering, Engineering Day at the Legislature).
4. Served as group leader and coordinator of the ECE Networking faculty group.
5. Continues to lead the initiative on Service Sciences, Management and Engineering, in education and research.
6. Continued to coordinate the Master's of Science in Computer Networking program (together with Prof. H. Perros of Computer Science).
7. Initially participated in and more recently, led the efforts to organize Open House at NC State, made presentations about the department and provided information to prospective students and parents.
8. Represented CACC and presented overviews to BellSouth, IBM, Nortel and Alcatel.
9. Participating in efforts to attract new members to CACC such as Spirent and OPNET, and retain old ones like Nortel.
10. Participating in meetings and development efforts for joint research opportunities between the cities of Raleigh and Ottawa, the capital city of Canada.

INTERNATIONAL OUTREACH

Visited the University of Trento again in the summer of 2016 to teach a short course at their Doctoral school in electrical and computer engineering, and planning to visit again in June 2018.

Working with the department of Industrial Engineering at the University of Vigo in Spain, to develop a summer course for 2016. We are also developing a collaboration if Doctoral student supervision, which we hope will evolve into a dual PhD degree.

As a member of the IEEE Communications Society Education Board, I am leading a working group on international outreach to student chapters and high schools, to promote telecommunications engineering and offer educational value to young or future IEEE ComSoc members. Initiated distinguished speaker program in parallel with ComSoc flagship conferences (ICC and Globecom), and series of visits to local high schools. First instance was during ICC 2010, in Cape Town, South Africa, with a distinguished speaker event at the University of Cape Town and visits to two local high schools. The second instance was during IEEE Globecom and CAMAD 2010, in Miami, with a webinar attended by student branches. And the next instance

took place during IEEE CAMAD 2011, Kyoto, Japan, June 10-11, 2011, with IEEE student branches from Valparaíso, Chile; Cape Town and Pretoria, South Africa; and Serres, Greece.

As an IEEE Communications Society Distinguished Lecturer, between 2008 and 2011, I gave many lectures at several locations in the US and around the world, including Europe and South America.

While in Trento, Italy, during my sabbatical in the Fall of 2010, I negotiated a long term collaboration with the University of Trento and their English-speaking international doctoral program in information science and engineering. This effort has culminated in the signing of an official memorandum of understanding (MOU) between the two universities and is planned to lead to further specific activities including a joint course across the Atlantic, and the development of local service-oriented projects for summer students.

CONSULTING

1. Visiting scholar at the IBM Websphere Technology Institute, May 16, 2007 – present.
2. Visiting scholar at the IBM Websphere Technology Institute, July 16 – August 15, 2005 (full time) and August 16 – December 20, 2005 (one day per week).
3. Sub-contractor for Carleton University (Ottawa, Canada) in research project with Alcatel, April 2003 – May 2005.

SHORT COURSES

1. Visiting researcher and short course on design of next generation networks, University of Trento, Dept. of Information Science and Engineering, Italy, September 2010.
2. Visiting researcher and short course on design of networks and services, University of Trento, Dept. of Information Technology, Italy, June 2008.
3. Visiting researcher and short course on High Speed Networks, State University of Campinas, Brazil, October 2006.
4. Advanced Simulation Techniques for Communication Networks, June 2005, Dept. of Information and Communication Technology, ICT Doctorate School, University of Trento, Italy.
5. An Introduction to Modern IP and ATM Networks, Spring 2000, for Newbridge Networks (later Alcatel) engineers from the Guangdong Province, China.
6. Broadband Networks, Fall 1998, Spring 1999 and Fall 1999, for engineers in the Chinese Ministry of Telecommunications, sponsored by the Canadian International Development Agency (CIDA) and Newbridge Networks Corp.
7. High- Speed Networks, 1997 and 1998, for Nortel engineers.

B. PROGRAM IMPACTS

Describe results/impact of accomplishment.

1. Dr. Devetsikiotis' engagement efforts have contributed to the recruiting of a greater number of highly qualified students as well as to an improved public perception of NC State. Dr. Devetsikiotis has had a significant impact on ECE outreach and recruitment, through initiatives related to Open House, presentations to high school students, entering freshmen, and international visits, projects and collaborations.
2. Furthermore, through Dr. Devetsikiotis' outreach industrial relationships have been strengthened and diversified, leading to more opportunities for funding but also larger number of our students being hired. These strengthened relationships with industry and the community have resulted in the delivery of specialized short courses for practicing telecommunication engineers.
3. Dr. Devetsikiotis' efforts with IBM have resulted in summer positions for students as well as the establishment of a new laboratory for IBM Software Performance located at NC State. This laboratory is the focal point for two separate research projects related to web services performance and testing tools.

V. TECHNOLOGICAL AND MANAGERIAL INNOVATION

A. KNOWLEDGE/TECHNOLOGY TRANSFER

List knowledge and technology transfer accomplishments, e.g., copyrights awarded, invention disclosures, patents filed, patents awarded, new cultivars developed and released, major software packages, design patents, system designs, organizational processes developed, technologies commercialized, etc.

1. Between 1998 and 2000, Dr. Devetsikiotis was involved in a close collaboration with Nortel Networks. This collaborating group studied and developed algorithms for the on-line measurement of network traffic, that could be implemented in real routers. This line of work continued in the project with Alcatel/Plano between 2001 and 2003, and currently with Alcatel/Ottawa (until 2005, with plans to extend the collaboration in the future). Recent work with Alcatel has led to adaptation techniques under consideration for implementation, and submission of a patent.
2. Dr. Devetsikiotis and his group have been very active in the area of statistical characterization and realistic modeling of network traffic, including LAN, *variable-bit-rate-compressed video*, and teleconferencing traffic. His have utilized a wide variety of models, ranging from standard Markovian models (e.g., MMPP) to Transform-Expand-Sample (TES) and to models based on *self-similar* processes that capture the *long-range dependence* of certain sources. His research team has also develop algorithmic methods for automatic modeling of empirical traffic traces. This work has attracted significant interest in industry and academia, as witnessed by the transfer of knowledge in this area to industry, as well as the early collaboration with Bellcore (W. Willinger, A. Erramilli, J. Wang) and NEC (B. Melamed, now at Rutgers University).
3. Dr. Devetsikiotis and his group have implemented traffic models in software (C++, MODSIM, and OPNET) , this is being used in simulations by industry. Their traffic models have also been incorporated into the GN Nettek InterWatch 95000 ATM Analyzer. This ATM analyzer was one of the first fully ATM-compatible analyzers at speeds up to OC-48 and is being used already by IBM, Nortel and other telecommunications companies. The addition of synthetic traffic generation to the capabilities of this test set is advertised as one of its major selling features (see for example related issues of the IEEE Communications Magazine). Response from the users in industry has been very positive.
4. In 1996, Dr. Devetsikiotis was the principal investigator for a contract with SPAR Aerospace of Montreal, Quebec, under a subcontract to the European Space Agency, to prepare advanced synthetic traffic generator software (in OPNET compatible C++ modules), including traffic generators for long-range dependent sources, to be used in simulation studies of satellite broadband networks (co-investigators Profs A. Roger Kaye and Ioannis Lambadaris).
5. In 1996-97 Dr. Devetsikiotis was the principal investigator for a contract with Newbridge Networks Corporation of Kanata, Ontario, in order to: (a) provide Newbridge with a library of synthetic traffic generation modules in C++ to be used in their performance evaluation of ATM network equipment; (b) devise fast estimation techniques based on importance sampling for the simulation of low cell loss probabilities in Newbridge-manufactured ATM switches (co-investigator Professor Ioannis Lambadaris).
6. In March 1995, Dr. Devetsikiotis was co-investigator in a research contract with CANARIE, Inc., in order to incorporate bursty traffic generation capability into ATM test equipment made by GN Nettek of Markham, Ontario (Phase I of a longer-term project to add sophisticated traffic generation and statistical capabilities to GN Nettek's ATM testing equipment). (PI A. Roger Kaye, co-investigator Ioannis Lambadaris).
7. In March 1996, Dr. Devetsikiotis and his fellow researchers concluded work under a second phase contract with GN Nettek for a continuation and enhancement of the above project. Under this contract we implemented our traffic generation software on the actual GN Nettek InterWatch 95000 test set and incorporated the code with a Graphical User Interface. (PI A. Roger Kaye, co-investigator Ioannis Lambadaris).

B. DESCRIBE PROGRAM IMPACTS

Devetsikiotis has emphasized a combination of mathematical rigor with engineering applications. His efforts, in collaboration with a large number of colleagues and students, have resulted in engineering research outcomes that were transferred to industry in the form of simulation methods and tools, algorithms and traffic generation equipment. This commitment to engineering solutions increases tremendously the impact and visibility of our university work and also increases the opportunities for recruiting of students.

VI. SERVICE TO THE UNIVERSITY AND PROFESSIONAL SOCIETIES

University service (department, college, and university committees and governance organizations); state, regional, national and international professional activities and committee work, including professional associations.

DEPARTMENT SERVICE

1. Chair, ECE Department, The University of New Mexico, 07/2016 – present.
2. Director of Graduate programs, ECE department, NC State University, 01/2011 – 06/2016.
3. Member, NC State Interdisciplinary Research Advisory Council, 2012.
4. ECE Faculty hiring committee, 01/2011 – 05/2011.
5. Chair, ECE RPT committee, 2009- 2010.
6. Co-PI ECE Research Experiences for Undergraduates, Fall 2007 – present.
7. ECE Coordinator, Spend-a-day in Engineering tours.
8. Chair, ECE Department Open House committee, Jan. 2003 – 2010.
9. ECE Coordinator for Engineering Day at the Legislature, Spring 2009.
10. Vice-Chair, Reappointment, Promotion and Tenure (RPT) committee, 2007-
11. Program coordinator and advisor, Master's program in Computer Networking, 2006-2010.
12. Area leader and coordinator of the ECE Networking faculty group, 2006-2010.
13. Steering committee, Service Sciences, Management and Engineering concentration of MSCN, 2006-
14. ECE Department Undergraduate Research Committee, 2007 –
15. ECE Department outreach committee, September 2005 –
16. NC State University, ECE Department new faculty hiring committee (networking), Nov. 2002 – April 2003.
17. NC State University, ECE Department graduate admissions screening, March-April 2002.
18. NC State University, ECE Department new faculty hiring committee (networking), Nov. 2001 – April 2002.
19. NC State University, ECE Department teaching peer review committee, Oct. 2001 – September 2005.
20. NC State University, ECE Department open house committee, Sept. 2001 – present.
21. NC State University, ECE Department new faculty hiring committee (networking), Feb. 2001 – May 2001.

UNIVERSITY SERVICE

SERVICE AT NC STATE

1. Member, Watauga Medal committee, 2015 and 2016.
2. Member, Faculty Senate, 2012 – 2016 (re-elected for second two-year term, April 2014)
3. Chair, College of Engineering Graduate Studies Committee, NC State University, 2014 – 2016.
4. Member, University Standing Committee on Extension and Engagement, 2012 – 2016.
5. Graduate admissions committee, Operations Research program, 2006-2010.
6. Member of the Graduate Faculty, Computer Science Department, 2002 – 2016.
7. NC State University, College of Engineering Computer Committee: participated twice in the Spring of 2001.

SERVICE AT CARLETON UNIVERSITY

1. Carleton University Network Planning and Design Committee, Oct. 1999 – Oct. 2000.
2. Coordinator, Carleton U. Communications Engineering Program, July 1999 – Sept. 2000.
3. Carleton University, Associate Chair for Undergraduate Studies for the SCE department, July 1998 – June 1999.
4. Carleton University Engineering Academic Planning Committee, July 1998 – June 1999.
5. Carleton University Engineering Committee on Admissions and Studies, July 1998 – June 1999.
6. Carleton University, SCE Departmental liaison for the Training and Learning Resources Center, June 1997 – Dec. 2000.

CROSS-APPOINTMENTS

1. Associate Faculty Member, Computer Science Department, NC State, May 2001 -.
2. Faculty Member, Operations Research Program, NC State, April 2001 - .
3. Adjunct Research Professor, Systems & Computer Engineering, Carleton University, Jan. 2001 - present.

INTERNATIONAL PROFESSIONAL ACTIVITIES

PROFESSIONAL SOCIETIES

1. Member Awards Committee, ECE Department Head Association 2017 –
2. Vice-chair, previously Secretary, IEEE ComSoc Technical Committee on Transmission, Access and Optical Systems, 2010 – 2013.
3. Chair, Vice-chair, previously Vice-Chair and Member-at-Large, IEEE Communications Society Globecom-ICC Technical Committee (GITC), 2010 – 2013. Started as new GITC Chair in January 2014.
4. Member-at-Large, IEEE Communications Society Education Board, 2008 – 2011, 2014 – present.
5. IEEE Communications Society Distinguished Lecturer, 2008 – 2011.
6. IEEE new senior member applications panel, March 2007.
7. Senior Member IEEE (Student Member 1985, Member 1994, Senior Member 2003); member of the IEEE Communication Society
8. Member of ASEE (2003 – present)
9. Member INFORMS (Telecommunications Section)
10. Chairman, IEEE Communication Society Technical Committee on Communication Systems Integration and Modeling, April 2002 – June 2006.
11. Vice-Chairman, IEEE Communication Society Technical Committee on Communication Systems Integration and Modeling, December 1999—April 2002.
12. Member, IEEE Communication Society Technical Committees on Personal Communications, Optical Networking, and Computer Communications, January 2001 – present.
13. Secretary, IEEE Communication Society Technical Committee on Communication Systems Integration and Modeling, November 1996-December 1999.
14. Member Honor Society Sigma Xi
15. Member Honor Society Phi Kappa Phi
16. Member Honor Society Eta Kappa Nu

EDITORIAL BOARDS

1. Guest Editor, Journal of Internet Services and Applications, Special issue on Service Modeling and Design for the Future Internet, 2011.
2. Guest Editor, ACM Transaction on Modeling and Computer Simulation, special issue on Modeling and Simulation of Cross Layer Systems, 2008-2010.
3. Guest Editor, Mobile Networks and Applications, special issue on “New advances in broadband wireless networking”, 2008.
4. Area Editor, *ACM Transactions on Modeling and Computer Simulation*, January 2007—present
5. Member of the Editorial Board, IEEE Communications Surveys and Tutorials, Sept. 2006 – present.
6. Member of the Editorial Board, Journal of Internet Engineering, Feb. 2006 – present.
7. Member of Editorial Board, *Intl. Journal of Simulation and Process Modeling*, August 2004 – present
8. Associate Editor, IEEE Communications Letters, 2002 – 2006
9. Associate Editor, ACM Transactions on Modeling and Computer Simulation, 1997 – 2006
10. Guest Editor, *Computer Networks*, Special Issue “Long-Range Dependent Traffic Modeling”, Oct. 2004
11. Guest Editor, *Computer Networks*, Issue on “Self-Similar Traffic Modeling and Engineering”, Oct. 2002
12. Guest Editor, *ACM TOMACS*, Spec. Issue on Modeling and Simulation of Comm. Networks, April 2000.

ORGANIZER, INTERNATIONAL CONFERENCES

1. Steering committee chair and TPC member, IEEE CAMAD 2016.
2. Tutorials co-Chair, IEEE ICC 2016.
3. Co-chair, Networking Track, EUCNC 2015

4. TPC member, IEEE Smart Grid Comm 2014.
5. TPC member, IEEE LATINCOM 2014.
6. Co-Chair, Technical Program Committee, IEEE LATINCOM 2013.
7. TPC member, IEEE Smart Grid Comm 2013.
8. Member, Technical Program Committee, IEEE LATINCOM 2012.
9. Co-organizer and co-chair, Smart Grid Communications Workshop, IEEE Globecom 2012.
10. TPC member, IEEE Smart Grid Comm 2012.
11. TPC chair, Green Communications Track, IEEE Globecom 2012.
12. Member, Technical Program Committee, LATINCOM 2011.
13. General Chair, IEEE CAMAD, Kyoto, Japan, June 2011.
14. Co-Chair, IEEE ICC 2012, Symposium on QoS, Reliability, Performance and Modeling, Ottawa, Canada.
15. Technical Program Committee, IEEE SmartGridComm, Maryland, October 2010.
16. Co-Chair, Quality, Reliability and Performance Symposium, IEEE Globecom 2010, Miami, December 2010.
17. Member of the Technical Program Committee, LATINCOMM 2010.
18. Co-chair, 3d IEEE Workshop on Enabling the Future Service Oriented Internet, EFSOI 2009.
19. Member of the Technical Program Committee, LATINCOMM 2009.
20. Member of the Technical Program Committee, IEEE Infocom 2009.
21. Workshops Chair and Member of the Executive Committee, IEEE Globecom 2008, New Orleans, Nov. 2008.
22. Member of the Technical Program Committee, Global Internet Workshop, in conjunction with IEEE Infocom 2008, April 2008.
23. Member of the Technical Program Committee for the Communications Quality and Reliability Workshop, CQR 2008.
24. Member of the Technical Program Committee, 41st Annual Simulation Symposium, ANSS 2008, Ottawa, April 2008.
25. Member of the Technical Program Committee, IEEE ICC 2008, Beijing, May 2008.
26. Chair of the organizing committee, Workshop on “Enabling the Future Service Oriented Internet” (IEEE Globecom 2007, Washington, DC, Nov. 2007).
27. Member of the Technical Program Committee, IEEE CAMAD 2007.
28. Member of the Technical Program Committee, Broadnets 2007.
29. Member of the Technical Program Committee, Global Internet Symposium 2007.
30. Member of the Technical Program Committee, 40th Annual Simulation Symposium.
31. Member of the Technical Program Committee, International Teletraffic Congress, 2007.
32. Member of the Technical Program Committee, ICN 2007.
33. Co-Chair, “Quality, Reliability and Performance for Emerging Network Services” Symposium, IEEE Global Telecommunications Conference, Globecom 2006, San Francisco.
34. Member of the Technical Program Committee, ACM MASCOTS 2006.
35. Member of the Technical Program Committee, 39th Annual Simulation Symposium.
36. Member of the Technical Program Committee, TridentComm 2006.
37. Member of the Technical Program Committee, IEEE CAMAD 2006.
38. Member of the Technical Program Committee, IEEE ICC 2006.
39. Co-Chair, “QoS, Reliability and Performance Modeling” Symposium, IEEE International Conference on Communications, ICC 2005, Seoul, Korea.
40. Co-Chair, “High-Speed Networking” Symposium, IEEE International Conference on Communications, ICC 2004, Paris, France.

41. Co-organizer and co-chair of the Second World Class Events Workshop, co-located with IFIP Networking 2005, Waterloo, Canada.
42. Member of the Technical Program Committee, ACM MASCOTS 2005.
43. Member of the Technical Program Committee, IEEE ICNS 2004 and ICNS 2005.
44. Member of the Technical Program Committee, IEEE INFOCOM 2003.
45. Member of the TPC, Next Generation Internet Symposium, IEEE ICC 2003.
46. Technical Program Committee member for ICETE 2004, ACM/IEEE MASCOTS 2002, IEEE Internet Performance Symposium 2002, IEEE ICC 2003, IEEE Globecom 2002, IEEE ICC 2002, IEEE Globecom 2000, IEEE ICC 1996.
47. Co-Chair, "Next Generation Internet Symposium", IEEE International Conference on Communications, ICC 2002.
48. Member of the Technical Program Committee, International Teletraffic Congress, ITC-17, 2001.
49. Member of the TPC, Internet Performance Symposium, IEEE Globecom 2002.
50. Organizer/Chair of the 8th IEEE Workshop on Computer-Aided Modeling, Analysis and Design of Communications Links and Networks, CAMAD 2000.
51. Program committee member for ENM-97, the Enterprise Networking mini-conference held in conjunction with IEEE ICC '97, and CSMA 2000, the Conference on Simulation Modeling and Applications, Orlando, October 2000.
52. Session organizer and/or chair for IEEE ICC '94, '95, '97, '98, and '99; IEEE Globecom '96, '97, '99, 2000, 2001, 2002, 2003 and 2004.

REVIEWER

1. Reviewer for several Journals, including: IEEE Communications Surveys, IEEE Trans. On Parallel and Distributed Systems, Simulation Modeling, Practice and Theory, Performance Evaluation, IEEE Transactions on Signal Processing, IEEE Transactions on Automatic Control, ACM Mobile Communications Review, IEEE Transactions on Communications, International Journal of Networking Systems, Telecommunication Systems, IEEE Communications Letters, IEEE Journal on Selected Areas in Communications, IEEE/ACM Transactions on Networking, ACM Transactions on Modeling and Computer Simulation, IEE Electronics Letters, Computer Networks, IEEE Communications Magazine.
2. Reviewer for a large number of conferences, including: IEEE GLOBECOM, IEEE ICC, IEEE INFOCOM, IEEE VTC, ACM SIGMETRICS, ACM SIGCOMM, World Telecommunications Congress, IFIP Networking, ISCC, ICNS, Performance/SIGMETRICS, and the International Teletraffic Congress.