CURRICULUM VITAE

NIRMALYA ROY

EDUCATION

Ph.D.	2008	University of Texas at Arlington, Computer Science and Engineering
M.S.	2004	University of Texas at Arlington, Computer Science and Engineering
B.E.	2001	Jadavpur University, Computer Science and Engineering

Experience in Higher Education

2013 – 2015 University of Maryland Baltimore County, Assistant Professor, Information Systems
2012 – 2013 Washington State University, Clinical Assistant Professor, School of Electrical Engineering and Computer Science
2010 – 2011 Institute for Infocomm Research (I2R), Research Scientist, Networking Protocols Department
2008 – 2009 University of Texas at Austin, Postdoctoral Research Fellow, Electrical & Computer Engineering

Experience in Other than Higher Education

2007 Motorola Research Lab, Research Intern
2006 Sun MicroSystem (Oracle now), Research Intern

Honors Received

2014 UMB-UMBC Research & Innovation Partnership Grant Winner
2014 UMBC 2014 Summer Faculty Fellowship
2011 Best Research Paper, Institute for Infocomm Research (I2R), Singapore
2011 Best Paper Nomination, IEEE PerCom 2011
2009 Best Paper Award, QShine 2009
2009 NSF Travel Grant Recipient: MobiHoc 2009, MobiSys 2008, PerCom 2008, PETRA 2008
2008 Finalist: IBM PhD Fellowship 2008
2007 Best Intern Apprentice Award, Motorola
2007 Outstanding Graduate Teaching Assistant Award, University of Texas
2006 Mark Weiser Best Paper Award, IEEE PerCom 2006
2005 1st place at UTA Graduate Research Competition – IDEAZ 2005
2007 STEM Doctoral Fellowship
2004 – 2007 Dean's Fellowship
2004 – 2006 TexTec Scholarship
2003 Nokia Scholarship

Research Support and/or Fellowships

Current Research Support

Project costs reflect total award amount including the total amount for collaborative grants. Acceptance rate is presented where available. Total funding raised during my tenure at UMBC is $1.3 million.

- PI, Energy Education through Green Buildings, Constellation, $25,000, 01/01/2016 - 12/31/2016, [Co-PI: Nilanjan Banerjee, Aryya Gangopadhyay, George Karabatis]
- PI, I-Corps Teams: A Sensor Technology Box for Smart Health, National Science Foundation, $50,000, 11/01/2015 - 04/30/2016, [Co-PI: George Karabatis]
- PI, CPS: Breakthrough: Low-cost Continuous Virtual Energy Audits in Cyber-Physical Building Envelope, National Science Foundation, $498,117, 09/16/2015 – 08/31/2018 [Co-PI: Nilanjan Banerjee, Ryan Robucci] [acceptance rate < 8%]
- PI, Automated Functional and Behavioral Health Assessment of Older Adults with Dementia, UMB-UMBC Research and Innovation Partnership Grant, $50,000, 03/01/2015 - 3/31/2016 [Co-PI: Aryya Gangopadhyay, Elizabeth Galik (UMB)] [acceptance rate: 19%]
- PI, A hybrid semiconductor-soft matter device as a route to a scalable, self-assembled spin register for optical quantum error correction, Office of Naval Research, $331,387, 01/01/2015 - 12/31/2017 [Co-Investigator: Todd Pitman, James Franson]
- PI, Energy Education through Green Buildings, Constellation, $45,000, 01/01/2015 - 12/31/2015, [Co-PI: Aryya Gangopadhyay, George Karabatis]
- PI, REU Supplements, EAGER: Design and Implementation of a Fine-Grained Appliance Energy Profiling System for Green Building, National Science Foundation, $16,000, 05/01/2015 - 12/31/2015
- PI, EAGER: Design and Implementation of a Fine-Grained Appliance Energy Profiling System for Green Building, National Science Foundation, $258,040, 09/01/2013 - 12/31/2015
- PI, Energy Education through Green Buildings, Constellation, $45,000, 01/01/2014 - 12/31/2014, [Co-PI: Aryya Gangopadhyay, George Karabatis]
- PI, REU Supplements, EAGER: Design and Implementation of a Fine-Grained Appliance Energy Profiling System for Green Building, National Science Foundation, $16,000, 05/01/2014 - 12/31/2014
- PI, Energy Disaggregation Algorithms for Green Building Technologies, Summer Faculty Fellowships (SFF), University of Maryland, Baltimore County, $5,000, 6/1/2014 – 8/31/2014
- PI, Smart Home in a Box Toolkit, Washington State University Gift, $3,500, (in-kind), 9/1/2013 – 12/31/2013

Ph.D. Students

Ph.D. Research Completed

Primary Advisor

Committee Member:

- Ahmad I. Alaiad, Ph.D. dissertation Advisor, Lina Zhou, 2015. Dissertation title: *A Model of Adoption of Emerging Home Healthcare Information Technology*

Ph.D. Research in Progress

Primary Advisor:

- Ph.D. dissertation advisor, Nilavra Pathak. Research area: Scalable Energy Disaggregation. Expected Ph.D. Dissertation proposal: August 2017. (passed Ph.D. comprehensive exam)

- Ph.D. dissertation advisor, Mohammad Arif Ul Alam. Research area: Functional and Behavioral Health Assessment of Older Adults. Expected Ph.D. dissertation proposal: January 2018.
- Ph.D. dissertation advisor, H M Sajjad Hossain. Research area: Active Learning for Activity Recognition. Expected Ph.D. dissertation proposal: December 2017.
- Ph.D. dissertation advisor, Md Abdullah Al Hafiz Khan. Research area: A Collaborative Opportunistic Sensing Framework for Pervasive Computing Applications. Expected Ph.D. dissertation proposal: December 2017.

Committee Member:

- Ph.D. dissertation committee member, Hsien-ming Chou (UMBC) (Dongsong Zhang, advisor). Dissertation title: "Context-Aware Call Management for Mobile Phones".
- Ph.D. dissertation committee member, David Lachut (UMBC), (Nilanjan Banerjee, advisor). Dissertation title: "Holistic Home Energy Management: From Sensing to Data Analytics".
- Ph.D. comprehensive exam committee member, Hyun Kweon (UMBC) (Dongsong Zhang, advisor).

Master's Students

Master's Research Completed

Primary Advisor:

Master's Research in Progress

Primary Advisor:

- M.S. thesis advisor, Vishak Iyer (UMBC). Research area: A Plug-n-Play Sensor Technology Box for Smart Health. Expected graduation date: December 2016

Committee Member:

- M.S. thesis committee member, Piyush Waradpande (UMBC) (Nilanjan Banerjee). Thesis title: Activity Recognition using Radars. June 2015
- M.S. thesis committee member, Chinonso Ugwu (UMBC) (Nilanjan Banerjee). Thesis title: Scalability and Reliability of using Capacitive Sensor Arrays for Occupancy Detection. October 2015

Undergraduate Students

Undergraduate Research Completed

- Joseph Taylor (UMBC NSF REU) (Research Project: Smart Home in a Retail Box: Modifying Inexpensive, Off-The-Shelf Hardware to Aid Cutting-Edge Research), Summer 2015, Advisor
- Joseph Taylor (UMBC NSF REU) (Research Project: A Survey of Embedded Power line Communications Solutions for Sensor Network Applications), Summer 2014, Advisor
- Sheung Lu (UMBC NSF REU) (Research Project: A Microphone Sensor based System for Green Building Applications), Summer 2014, Advisor
- Joseph Taylor (WSU NSF REU) (Research Project: A Hardware Prototype for Power Consumption Telemetry Over Existing Mains Wiring), Summer 2013, Advisor
- Vignesh Ramachandran (WSU NSF REU) (Research Project: Determining Power Consumption of Consumer Appliances Using NILM), Summer 2013, Advisor
- Rachel King (WSU NSF REU) (Research Project: Activity Recognition in Smart Home Environments through Micro Activity Classifications), Spring 2013, Advisor
- Brooks Kindle (WSU NSF REU) (Research Project: Monitoring Patient Recovery using Wireless Physiotherapy Devices). Summer 2013, Advisor

- Catherine Hornback (WSU NSF REU) (Research Project: A Smartphone Based Activity Recognition Framework). Summer 2013, Advisor

Undergraduate Research in Progress

- Joseph Taylor (UMBC NSF REU) (Research Project: Building A Sensor Technology Box for Smart Health), Fall 2015, Advisor

Independent Study Students

Independent Study Research Completed

- Joseph Christou (IS MS) (Research Project: Smart Home Monitoring using IP Cameras). Summer 2015
- Nivedeeta Kale (IS MS) (Research Project: Ground Truth Data Collection for Activity Recognition using Wireless Sensor Networks: Methodologies, Challenges and Opportunities). Summer 2015
- Mohammad Arif Ul Alam (IS PhD) (Research Project: Hierarchical ADL Recognition Framework). Spring 2015
- Md Abdullah Al Hafiz Khan (IS PhD) (Research Project: Collaborative Opportunistic Crowd Sensing for Large Scale Human Activity Recognition). Spring 2015
- Nilavra Pathak (IS PhD) (Research Project: Scalable Non-Intrusive Load Monitoring Algorithms). Spring 2015
- H M Sajjad Hossain (IS PhD) (Research Project: Active Crowd Sourcing: Active Learning for Crowd Sourcing). Spring 2015
- Nilavra Pathak (IS PhD) (Research Project: A Multi-modal Energy Disaggregation Framework for Non-Intrusive Load Monitoring). Spring 2014

Independent Study Research in Progress

- Mohammad Arif Ul Alam (IS PhD) (Research Project: Stress Detection of Older Adults). Fall 2015, Advisor
- Md Abdullah Al Hafiz Khan IS PhD) (Research Project: Transfer Learning for Activity Recognition). Fall 2015, Advisor
- H M Sajjad Hossain (IS PhD) (Research Project: Scalable Crowd Sourcing). Fall 2015, Advisor

PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHIEVEMENTS

Publications [h-index: 14, i-index: 15, Total Citations: 658]

Note: In computer science the top-ranked, highly selective conferences are viewed as equally (if not more) important publications than journal papers. They are indicated as "Selective" conference papers in the publications list below. Acceptance rates (AR) are indicated when they were made publicly available. It is the convention in computer science for the primary author's name to appear first. If the authors contributed equally, then names are typically listed in alphabetical order. My standard practice is when the work was joint work with a student is to list the student's name(s) first. All citations are based on Google scholar.

The most recent Google scholar profile can be found at
http://scholar.google.com/citations?hl=en&user=6KQI1ekAAAAJ&view_op=list_works

Peer-Reviewed Works

Journal Papers

- Nirmalya Roy, Archan Misra, Sajal K. Das and Christine Julien, "Quality and Context Aware Smart Healthcare", IEEE Systems, Man, and Cybernetics Magazine 2016 (*accepted for publication*)

- Mohammad Arif Ul Alam, Nilavra Pathak, and Nirmalya Roy. "Mobeacon: An iBeacon-Assisted Smartphone-based Real Time Activity Recognition Framework", EAI Endorsed Transactions on Ubiquitous Environments 2015

- Md. Abdullah Al Hafiz Khan, H M Sajjad Hossain, and Nirmalya Roy. "Infrastructure-less Occupancy Detection and Semantic Localization in Smart Environments", EAI Endorsed Transactions on Context-aware Systems and Applications 2015

- Nirmalya Roy, Archan Misra, Sajal K. Das and Christine Julien, "Quality- and Energy-Sensitive Determination of Multiple Contexts in Pervasive Computing Environments", IEEE/ACM Transaction on Networking 2015 [**Impact factor 1.986**]

- Nirmalya Roy, Nilavra Pathak, and Archan Misra, "Fine-grained Appliance Usage and Energy Monitoring through Mobile and Power-line Sensing", Pervasive and Mobile Computing (PMC) Journal, Elsevier 2016 [**Impact factor 2.079**]

- Nirmalya Roy, Archan Misra, and Diane Cook, "Ambient and Smartphone Sensor Assisted ADL Recognition in Multi-Inhabitant Smart Environments", Journal of Ambient Intelligence and Humanized Computing, Springer 2015 [**Impact factor 1.048**]

- Nirmalya Roy, Sajal K. Das and Christine Julien "Resource-Optimized Quality-Assured Ambiguous Context Mediation in Pervasive Environments," IEEE Transactions on Mobile Computing, pp. 218 – 229, Vol. 11, Issue 2, Feb. 2012 [**Impact factor 2.912**]

- Neda Edalat, Wendong Xiao, Mehul Motani1, Nirmalya Roy and Sajal K. Das, "Auction-based task allocation with trust management for shared sensor networks", Security and Communication Networks, Volume 5, Issue 11, pages 1223–1234, November 2012 [**Impact factor: 0.72**]

- Nirmalya Roy, Gu Tao and Sajal K. Das, "Supporting Pervasive Computing Applications with Active Context Fusion and Semantic Context Delivery", Pervasive and Mobile Computing (PMC) Journal, pp. 21-42, Vol. 6, Issue 1, Feb. 2010 [**Impact factor: 2.079**]

- Nirmalya Roy and Sajal K. Das, "Enhancing Availability of Grid Computational Services to Ubiquitous Computing Applications", IEEE Transactions on Parallel and Distributed Systems, vol. 20, no. 7, pp. 953-967, July. 2009 **[Impact factor: 2.173]**

- Sajal K. Das, Nirmalya Roy, and Abhishek Roy "Context-Aware Resource Management in Multi-Inhabitant Smart Homes: A Framework based on Nash H- Learning", Pervasive and Mobile Computing (PMC) Journal, pp. 372-404, Vol. 2, Issue 4, Nov. 2006 [**Impact factor: 2.079**]
- Preetam Ghosh, Nirmalya Roy, Sajal K. Das, and Kalyan Basu, "A Pricing Strategy for Job Allocation in Mobile Grids Using a Non-cooperative Bargaining Theory Framework," Journal of Parallel and Distributed

Computing (Special Issue on Design and Performance of Networks for Super-, Cluster-, and Grid-Computing, Guest Eds: A. Zomaya, M. Ould-Khaoua and H. Sarbazi-Azad), pp. 1366-1383, vol. 65, issue 11, Nov 2005 **[Impact Factor: 1.179]**

Selective Conferences and Workshops

- Md Abdullah Al Hafiz Khan, Ruthvik Kukkapalli, Piyush Waradpande, Sekar Kulandaivel, Nilanjan Banerjee, Nirmalya Roy, Ryan Robucci, "RAM: Radar based Activity Monitor", in Proc. IEEE International Conference on Computer Communications (INFOCOM), April 2016 [**acceptance rate: 18%**]

- H M Sajjad Hossain, Nirmalya Roy, Md Abdullah Al Hafiz Khan, "Active Learning Enabled Activity Recognition", in Proc. IEEE International Conference on Pervasive Computing and Communications (PerCom), March 2016 [**acceptance rate: 15%**]

- Nilavra Pathak, Nirmalya Roy, and Animikh Biswas "Iterative Signal Separation Assisted Energy Disaggregation", in Proc. IEEE 6th International Green and Sustainable Computing Conference (IGSC 2015), Dec 2015. Las Vegas, USA [**acceptance rate: 27%**]

- Mohammad Arif Ul Alam, Nilavra Pathak, Nirmalya Roy, "Mobeacon: An iBeacon-Assisted Smartphone-based Real Time Activity Recognition Framework", in Proc. of the 12th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous) July 2015, Coimbra, Portugal [**acceptance rate: 27%**]

- Md. Abdullah Al Hafiz Khan, Sajjad Hossain, and Nirmalya Roy "Infrastructure-less Occupancy Detection and Semantic Localization in Smart Environments", in Proc. of the 12th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous) July 2015, Coimbra, Portugal [**acceptance rate: 27%**]

- Nilavra Pathak, Md. Abdullah Al Hafiz Khan, and Nirmalya Roy, "Acoustic based appliance state identifications for fine grained energy analytics", in Proc. IEEE International Conference on Pervasive Computing and Communications (PerCom 2015) [**acceptance rate: 15%**]

- Nirmalya Roy, Nilavra Pathak, and Archan Misra, "AARPA: Combining Mobile and Power-line Sensing for Fine-grained Appliance Usage and Energy Monitoring", in Proc. IEEE International Conference on Mobile Data Management, IEEE MDM 2015 [**acceptance rate: 25%**]

- Md. Abdullah Al Hafiz Khan, Sajjad Hossain, and Nirmalya Roy, "SensePresence: Infrastructure-less Occupancy Detection for Opportunistic Sensing Applications", in Proc. International Workshop on Human Mobility Computing and Privacy (HuMoComP '15) in conjunction with IEEE MDM 2015

- Sajjad Hossain, Nirmalya Roy, and Hafiz Khan, "Sleep Well: A Sound Sleep Monitoring Framework for Community Scaling", in Proc. IEEE International Conference on Mobile Data Management, IEEE MDM 2015 [**acceptance rate: 25%**]

- Nirmalya Roy and Christine Julien, "Immersive physiotherapy: Challenges for smart living environments and inclusive communities", 12th International Conference on Smart Homes and Health Telematics (ICOST 2014), Denver, USA, June 2014

- Nirmalya Roy and Brooks Reed Kindle, "Monitoring patient recovery using wireless physiotherapy devices", 12th International Conference on Smart Homes and Health Telematics (ICOST 2014), Denver, USA, June 2014

- Mohammad Arif Ul Alam and Nirmalya Roy, "Gesmart: A gestural activity recognition model for predicting behavioral health", IEEE International Conference on Smart Computing (SmartComp 2014), Hong Kong, China, November 2014

- Nirmalya Roy, David Kleinschmidt, Joseph Taylor and Behrooz Shirazi, "Performance of the Latest Generation Powerline Networking for Green Building Applications," Proceedings of the 5th ACM Workshop on Embedded Systems For Energy-Efficient Buildings, (BuildSys), Rome, Italy, 2013

- Nirmalya Roy, Archan Misra, and Diane Cook, "Infrastructure-Assisted Smartphone-based ADL Recognition in Multi-Inhabitant Smart Environments", IEEE Int'l Conf. on Pervasive Computing (PerCom 2013) [**acceptance rate: 11%**]

- Neda Edalat, Wendong Xiao, Nirmalya Roy, Sajal K. Das and Mehul Motani "Combinatorial Auction-Based Task Allocation in Multi-Application Wireless Sensor Networks", Proc. of IEEE/IFIP Int'l Conf. on Embedded and Ubiquitous Computing (EUC), Oct. 2011

- Nirmalya Roy, Archan Misra, Christine Julien, Sajal K. Das and Jit Biswas, "An Energy Efficient Quality Adaptive Multi-Modal Sensor Framework for Context Recognition", Proc. of IEEE Int'l Conf. on Pervasive Computing (PerCom 2011), Seattle, USA, Mar 2011 [**acceptance rate: 11%**] (Nominated for Mark Weiser Best Paper Award)

- Nirmalya Roy, Vasanth Rajamani and Christine Julien, "Supporting Multi-Fidelity-Aware Concurrent Applications in Dynamic Sensor Networks," Proc. of the 2nd International Workshop on Information Quality and Quality of Service for Pervasive Computing (IQ2S 2010) in conjunction with PerCom 2010

- Nirmalya Roy, Christine Julien and Sajal K. Das, "Resource-Optimized Quality -Assured Ambiguous Context Mediation in Pervasive Environments," Proc. of International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine 2009), pp 232-248, Vol. 22, Nov. 2009 (Best Paper Award)

- Nirmalya Roy, Archan Misra, Sajal K. Das & Christine Julien, "Quality-of-Inference (QoINF)-Aware Context Determination in Assisted Living Environments", Proc. of ACM SIGMOBILE Workshop on Medical-Grade Wireless Networks (WiMD 2009) in conjunction with MobiHoc, May 2009

- Nirmalya Roy, Archan Misra and Sajal K. Das, "Efficient Long-Term Quality-of-Inference (QoINF)-Aware Context Determination in Pervasive Care Environments", Proc. of ACM SIGMOBILE Workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet 2008) in conjunction with MobiSys, Colorado, June 2008

- Nirmalya Roy, Gautham Pallapa and Sajal K. Das, "An Ontology-Driven Ambiguous Contexts Mediation Framework for Smart Healthcare Applications", Proc. of Int'l Conf. on PErvasive Technologies Related to Assistive Environments (PETRA 2008), Greece, July 2008

- Gautham Pallapa, Nirmalya Roy and Sajal K. Das, "A Scheme for Quantizing Context Privacy in Context-aware Ubiquitous Computing", Proc. of IET Int'l Conference on Intelligent Environments (IE 08) July 2008

- Nirmalya Roy, Gautham Pallapa and Sajal K. Das, "A Middleware Framework for Ambiguous Context Mediation in Smart Home Healthcare Application" Proc. of IEEE Int'l Conf. on Wireless and Mobile Computing, Networking and Communications (WiMob 2007) [**acceptance rate: 26%**]

- Gautham Pallapa, Nirmalya Roy and Sajal K. Das, "Precision: Privacy Enhanced Context-Aware

Information Fusion in Ubiquitous Healthcare" Proceeding of the First Workshop on Software Engineering of Pervasive Computing Applications, Systems and Environments (SEPCASE '07) in conjunction with ICSE 2007 [**acceptance rate: 29%**]

- Nirmalya Roy, Abhishek Roy and Sajal K. Das "Context-Aware Resource Management in Multi Inhabitant Smart Homes: A Nash H-learning based Approach", Proc. of IEEE Int'l Conf. on Pervasive Computing (PerCom 2006), Pisa, Italy, Mar 2006 [**acceptance rate: 8%**] (Mark Weiser Best Paper Award)

- Nirmalya Roy, Abhishek Roy, Kalyan Basu and Sajal K. Das "A Cooperative Learning Framework for Mobility- Aware Resource Management in Multi-Inhabitant Smart Homes", IEEE International Conference on Mobile and Ubiquitous Systems: Networking and Services (MobiQuitous 2005), San Diego, California, USA, pp. 393-403, July 2005 [**acceptance rate: 35%**]

- Nirmalya Roy, Sajal K. Das , Kalyan Basu and Mohan Kumar "Enhancing Availability of Grid Computational Services to Ubiquitous Computing Applications", IEEE International Conference on Parallel and Distributed Processing Symposium (IPDPS'2005), Denver, Colorado, USA, April 2005 [**acceptance rate: 12%**]

- Preetam Ghosh, Nirmalya Roy, Sajal K.Das and Kalyan Basu "A Game Theory based Pricing Strategy For Job Allocation in Mobile Grid", IEEE International Conference on Parallel and Distributed Processing Symposium (IPDPS'2004), Santa Fe, New Mexico, USA, April 2004 [**acceptance rate: 32%**]

- Agoston Petz, Taesoo Jun, Nirmalya Roy, Chien-Liang Fok and Christine Julien "Passive Network-Awareness for Dynamic Resource-Constrained Networks", Proc. Of 11th IFIP International Conference on Distributed Applications and Interoperable Systems, (DAIS 2011), pp. 106-121, June 2011

- Taesoo Jun, Nirmalya Roy and Christine Julien, "Modeling Delivery Delay for Flooding in Mobile Ad Hoc Networks," Proceedings of the IEEE International Conference on Communications (ICC) 2010

- Prateek Shah, Nirmalya Roy, Abhishek Roy, Kalyan Basu, and Sajal K Das "Design of PON using VQ - Based Fiber Optimization", Telecommunications and Networking - ICT 2004, 11th IEEE International Conference on Telecommunications, Fortaleza, Brazil, pp. 1303-1309, vol. 3124, Aug 2004 [**acceptance rate: 25%**]

- Preetam Ghosh, Nirmalya Roy, Kalyan Basu, Sajal K. Das, Paul. Wilson and Prabir Das, "A Case Study-based Performance Evaluation Framework for CSCF Processes on a Blade-Server" Proc. of IEEE Int'l Conf. on Networking and Services (ICNS 2007) [**acceptance rate: 38%**]

- Nirmalya Roy, Kevin Brooks and Christine Julien "Usability of Semantic Web for Enhancing Digital Living Experience" Proc of IEEE Consumer Communications and Networking Conference (CCNC) 2010, Las Vegas, USA

Book Chapters and Editorials

- Nirmalya Roy "Green building energy analytics: Challenges and opportunities", IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom Workshops), 292-292, 2015 (*Keynote talk*)
- Nirmalya Roy, Parisa Rashidi, Larry Holder, Liming Chen, Special issue on data mining in pervasive environments, Pervasive and Mobile Computing, 151-152, Elsevier 2014
- Nirmalya Roy, Sajal K. Das and Christine Julien, "Resolving and Mediating Ambiguous Context in Pervasive Healthcare Environments", Smart Healthcare Applications and Services, Carsten Röcker et al

(editors), Idea Group Publishing, IRM Press, 2010

- Nirmalya Roy and Sajal K. Das, "Managing Context Uncertainty in Smart Pervasive Environments", Designing Solutions-Based Ubiquitous and Pervasive Computing: New Issues and Trends, Milton Mendes et al (editors), Idea Group Publishing, IRM Press, 2009
- Sajal K. Das and Nirmalya Roy, "Learning, Prediction and Mediation of Context Uncertainty in Smart Pervasive Environments", OnTheMove to the Meaningful Internet Systems, R. Meersman et al (editors), Lecture Notes in Computer Science 5333, Nov. 2008, pp. 820-829
- Nirmalya Roy, Abhishek Roy, Kalyan Basu and Sajal K. Das "A Reinforcement Learning Framework for Location-Aware Resource Management in Multi-Inhabitant Smart Homes", From Smart Homes to Smart Care, Sylvain Giroux et al(editors), IOS Press, July 2005, pp.180-187

Other Refereed Conferences and Workshops

- Md. Abdullah Al Hafiz Khan, Sheung Lu, Nirmalya Roy, and Nilavra Pathak, "Demo Abstract: A Microphone Sensor based System for Green Building Applications", in Proc. IEEE International Conference on Pervasive Computing and Communications (PerCom 2015), Saint Louis, USA March 2015
- Joseph Taylor, Nirmalya Roy, David Kleinschmidt and Behrooz Shirazi, "Demo Abstract: Performance of the Latest Generation Powerline Networking for Green Building Applications," Proceedings of the 5th ACM Workshop on Embedded Systems For Energy-Efficient Buildings, (BuildSys), Rome, Italy, 2013
- Nirmalya Roy, Christine Julien, Archan Misra and Sajal K. Das, "A Prototype for Resource Optimized Context Determination in Pervasive Care Environments" Proc. of International Conference on Mobile Computing, Applications, and Services (MobiCASE 2009, Demonstrations Track), Oct. 2009
- Nirmalya Roy, Christine Julien and Sajal K. Das, "Resolving and Mediating Ambiguous Contexts for Pervasive Care Environments," IEEE International Conference on Mobile and Ubiquitous Systems: Networking and Services (MobiQuitous 2009, Poster Paper), July 2009
- Nirmalya Roy and Sajal K. Das, "Context-aware Learning, Prediction and Resource Management in Smart Pervasive Environments", Proc. of IEEE Int'l Conf. on Pervasive Computing (PerCom 2008: Google PhD Forum), Mar 2008
- Nirmalya Roy and Sajal K. Das, "A Context-Aware Learning, Prediction and Mediation Framework for Resource Management in Pervasive Environments", Proc. of ACM SIGMOBILE USENIX Int'l Conference on Mobile Systems, Applications and Services (MobiSys 2008: PhD Forum), Colorado, June 2008
- Nirmalya Roy and Sajal K. Das, "Quality-Assured Ambiguous Contexts Mediation Framework for Smart Healthcare Applications", Proc. of ACM SIGMOBILE USENIX Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2008: WIP Session), Colorado, June 2008
- Preetam Ghosh, Nirmalya Roy and Sajal K. Das "Mobility-based Cost-effective Job Scheduling in an IEEE 802.11 Mobile Grid Architecture" Proceeding of the First Int'l Workshop on Context-Awareness and Mobility in Grid Computing (WCAMG'07) in conjunction with CCGrid'2007 [**acceptance rate: 34%**]

Non-Peer-Reviewed Works

- Nirmalya Roy, "Scalable Activity Recognition for Smart Health", NSF Smart and Connected Health (SCH) Aspiring Investigators Workshop, June 2015
- Nirmalya Roy, "Automated Functional and Behavioral Health Assessment of Older Adults with Dementia", NSF CISE Career 2015 workshop, March 2015
- Nirmalya Roy and Kevin Brooks "Usability of Semantic Web for Enhancing Digital Living Experience" Motorola Technical Report 2007

Works Submitted or In Preparation

- H M Sajjad Hossain, Nirmalya Roy, and Md. Abdullah Al Hafiz Khan, "Sleep Well: A Sound Sleep Monitoring Framework for Community Scaling", Pervasive and Mobile Computing (PMC) Journal, Elsevier 2015 (*submitted for publication*)
- Mohammad Arif Ul Alam, Nirmalya Roy, Aryya Gangopadhyay, Elizabeth Galik, "A Gestural Activity Recognition Model for Predicting Behavioral Health", Pervasive and Mobile Computing (PMC) Journal, Elsevier 2015 (*submitted for publication*)

Patents and Entrepreneurship

- Nirmalya Roy, Sajjad Hossain and Arif Alam, "Scalable Activity Recognition for Independent Living Applications" UMBC Ref. No. 2015-004
- NSF I-Corps Grant Winner, Fall 2015

Presentations

Conference/Poster Presentations

- "AARPA: Combining Mobile and Power-line Sensing for Fine-grained Appliance Usage and Energy Monitoring", IEEE MDM, Pittsburgh, May 2015
- "Monitoring Patient Recovery using Wireless Physiotherapy Devices", ICOST 2014, Denver, CO, June 2014
- "Immersive Physiotherapy: Challenges for Smart Living Environments and Inclusive Communities" ICOST 2014, Denver, CO, June 2014
- "An Energy-Efficient Quality Adaptive Framework for Multi-Modal Sensor Context Recognition", PerCom 2011, Seattle, USA
- "Quality-of-Inference Aware Context Determination", IEEE PerCom 2009, PhD forum, Galveston, USA
- "A Context-Aware Learning, Prediction and Mediation Framework for Resource Management in Smart Pervasive Environments", ACM MobiSys 2008, Colorado, USA
- "Context-Aware Learning, Prediction and Resource Management in Smart Pervasive Environments", IEEE PerCom 2008, Hong Kong, China
- "A Reinforcement Learning Framework for Location-Aware Resource Management in Multi-Inhabitant Smart Homes", ICOST 2005, Quebec, Canada
- "A Cooperative Learning Framework for Mobility-Aware Resource Management in Multi-Inhabitant Smart Homes", Mobiquitous 2005, San Diego, CA
- "Enhancing Availability of Grid Computational Services to Ubiquitous Computing Applications", IPDPS 2005, Denver, CO

Other Professional Presentations

Lectures

- "Deep Data Analytics for Detecting Abnormal Human Behavior in Public Spaces" DARPA Proposer Day, Arlington, Virginia, July 2015
- "Scalable Smart Home Activity Recognition Technologies", bwtech@UMBC, Technology Catalyst Fund, May 2015
- "Job Search Resources and Tips", Information Systems Department, UMBC, April 2015
- "AI/KM PhD Student Research Seminar", Information Systems Department, UMBC, October 2014
- "Energy Education through Green Buildings", Constellation Visit, UMBC, January 2014
- "Usability of Semantic Web for Enhancing Digital Living Experience", Motorola Labs (Lowell, MA), Aug 2007
- "PhD Research Goals and Challenges" Sun Microsystem (Santa Clara, CA), September 2006

Keynotes

- Keynote Talk: "May I live Independently with IoT and Machine learning?", IEEE ICCTIDE 2016, National Engineering College, Kovilpatti, Tamil Nadu, India, January 2016
- Keynote Talk: "Green Building Energy Analytics: Opportunities and Challenges", IEEE PerEnergy 2015 workshop in conjunction with IEEE PerCom 2015, Saint Louis, Missouri, USA, March 2015
- Keynote Talk: "Green Building Energy Analytics", ICECCS 2014, NITK Surathkal, Mangalore, India December 2014

Colloquia

- "May I live Independently with IoT and Machine learning?", TCS Innovation Research Lab, Kolkata, India, January 2016
- "May I live Independently with IoT and Machine learning?", Indian Statistical Institute (ISI), Kolkata, India, January 2016
- "Quality- and Energy-Sensitive Determination of Multiple Contexts in Pervasive Computing Environments", IIT Kharagpur, India, May 2013
- "Quality Adaptive Models and Middleware for Situation Recognition in Pervasive Healthcare: Data Analytics Tools and Techniques", Rochester Institute of Technology, March 2013
- "Quality Adaptive Models and Middleware for Situation Recognition in Pervasive Healthcare: Data Analytics Tools and Techniques", University of Maryland at Baltimore County, March 2013
- "Quality- and Energy-Sensitive Determination of Multiple Contexts in Pervasive Computing Environments", Colorado School of Mines, Feb 2013
- "Quality Adaptive Models and Middleware for Situation Recognition in Pervasive Healthcare: Data Analytics Tools and Techniques", University of North Carolina at Charlotte, Feb 2013
- "An Energy Efficient Quality Adaptive Multi-Modal Sensor Framework for Context Recognition", IEEE Calcutta Section, India October 2011
- "Resolving and Mediating Ambiguous Contexts in Pervasive Health Care Environments: Computational Tools and Techniques", University of Texas El Paso, ECE Department, March 2011
- "Resolving and Mediating Ambiguous Contexts in Pervasive Health Care Environments: Computational Tools and Techniques", Institute for Infocomm Research (I2R), Singapore April 2010
- "Resolving and Mediating Ambiguous Contexts in Pervasive Health Care Environments: Computational Tools and Techniques", Michigan Technological University, May 2009

- "Resolving and Mediating Ambiguous Contexts for Pervasive Health Care Environments", Korean Advanced Institute of Science and Technology (KAIST), April 2009
- "Resolving and Mediating Ambiguous Contexts for Pervasive Health Care Environments", University of Southern Mississippi, April 2009
- "Resolving and Mediating Ambiguous Contexts for Pervasive Health Care Environments", University of Alberta, Feb 2009
- "A Mathematical Framework for Managing Context Uncertainty in Smart Pervasive Environments", ExxonMobil Research & Engineering, New Jersey, Aug 2008
- "A Middleware Framework for Ambiguous Context Determination and Mediation in Pervasive Care Environments", University of Texas at Austin, ECE Department, June 2008
- "A Framework for Ambiguous Context Determination and Mediation in Pervasive Health Care Environments", Kansas State University (KSU), May 2008

Media Activities

- "Mobile, Pervasive and Sensor Computing (MPSC) Lab Research Overview", Deloitte Delegates, UMBC October 2013 [Interview excerpts were published in the Wall Street Journal, July 2014]

Media Coverage

- UMBC Formalizes Research Partnership with U.S. Naval Academy, Research at UMBC News, May 2015
- Constellation Awards E2 Energy to Educate Grant to UMBC's Information Systems Department, UMBC's Giving Blog, April 21, 2015
- UMBC-UMB Partnership Awards a Catalyst for Collaboration, Research at UMBC News, Feb 17, 2015
- UMBC and UMB celebrate research partnerships with symposium and innovation grants, UMBC News, Feb 12, 2015
- Using Sensor Technology to Lower Elder Care Costs, The Wall Street Journal, July 28, 2014
- COEIT Uses Constellation Energy's Education Award For Undergraduate Research, UMBC Insights, March 27, 2014
- CNBC News on Constellation Energy Education project, Exploring new ways of reducing power demand in household appliances. Several other press releases available at Campus Technology News; Yahoo Finance; Electric Energy Online; Broadwayworld; Business Wire; Market Watch News etc. Nov. 2013
- Movement sensor's feedback acts as physical therapist, WSU News, July 30, 2013
- WSU Smart Environments Summer REU Explores Green Living and Healthcare Applications, WSU News, July 11, 2013
- Undergrad researchers succeed with the smart plug work, WSU News, August 12, 2013
- WSU Smart Environments Summer REU Explores Green Living and Healthcare Applications, WSU News, July 11, 2013

SERVICE TO THE DEPARTMENT, UNIVERSITY, COMMUNITE AND PROFESSION

Departmental Service

- Departmental Faculty Search Committee, UMBC, 2015-16.
- Departmental Research Committee, UMBC, 2014-15.

University Service

- UMBC Climate Action Advisory Group, UMBC, 2015-16.

Professional Service

Program chair

- Special Session on Green Building Energy Analytics 2014 in conjunction with International Green Computing Conference (IGCC), November **2014**

Program co- chair

- First IEEE Workshop on Smart Service Systems (SmartSys) in conjunction with International Conference on Smart Computing (SmartComp), May **2016**

Program vice-chair

- Green Communications and Computations track in 11th IEEE Consumer Communications and Networking Conference (CCNC), Jan. **2014**

Publicity Chair

- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2016**
- ACM International Conference on Distributed Computing and Networking (ICDCN): **2016**
- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2015**
- IEEE International Green and Sustainable Computing Conference (IGSC): **2015**
- IEEE International Green Computing Conference (IGCC): **2014**
- IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM): **2013**
- ACM International Conference on Distributed Computing and Networking (ICDCN): **2013**
- IEEE International Workshop on Cyber Physical Systems: Integration of Cloud, Mobility and Sensing (CaPSICuMS): **2011**

Program Committees (Main Conference, workshop, poster and demo session)

- ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys): **2016**
- IEEE International Conference on Smart Computing (SMARTCOMP): **2016**
- IEEE International Conference on Mobile Data Management (MDM): **2016**
- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2016**
- IEEE International Workshop on Managing Ubiquitous Communications and Services (MUCS): **2016**
- IEEE Workshop on Pervasive Energy Services (PerEnergy): **2016**
- IEEE International Conference on Pervasive Computing and Communications Demonstrations (PerCom Demos): **2016**
- IEEE International Workshop on Smart Environments: Closing the Loop (SmartE): **2015**
- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2015**
- International Conference on Digital Health co-located with World Wide Web Conference (WWW): **2015**
- International Conference on Orange Technologies (ICOT): **2015**
- 24th International World Wide Web Conference Poster Session (WWW): **2015**
- International Workshop on Smart Medical Devices - from Lab to Clinical Practice (SmartMedDev): **2015**
- IEEE Workshop on. Managing Ubiquitous Communications and Services (MUCS): **2015**
- IEEE International Green and Sustainable Computing Conference (IGSC): **2015**
- IEEE Workshop on the Internet of Things: Smart Objects and Services (IoT-SoS): **2015**
- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2014**
- IEEE International Green Computing Conference (IGCC): **2014**
- IEEE International Conference on Smart Computing (SmartComp): **2014**
- IEEE Workshop on. Managing Ubiquitous Communications and Services (MUCS): **2014**

- International Conference on Smart Homes, Assistive Technology and Health Telematics: Advances in Cognitive Technologies (ICOST): **2014**
- IEEE International Workshop on Mobility Management and Mobile Middleware (MobiMMWare): **2014**
- ACM UbiComp International Workshop on Smart Health Systems and Applications (SmartHealthSys): **2014**
- IEEE Workshop on the Internet of Things: Smart Objects and Services (IoT-SoS): **2014**
- ACM UbiComp International Workshop on recent advances in behavior prediction and pro-active pervasive computing (AwareCast): **2014**
- Workshop on Complex Network Dynamics: Cross-Disciplinary Tools for Modeling, Analysis, and Design (CoNeD): **2014**
- The 11th International Conference on Mobile Systems and Pervasive Computing (MobiSPC): **2014**
- 9th Workshop on Artificial Intelligence Techniques for Ambient Intelligence (AITAmI): **2014**
- ACM International Workshop on recent advances in behavior prediction and pro-active pervasive computing (AwareCast): **2013**
- IEEE International Conference on Distributed Computing Systems (ICDCS): **2013**
- IEEE International Conference on Green Computing and Communications (GreenCom): **2013**
- 11th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC): **2013**
- International Workshop on Information Quality and Quality of Service for Pervasive Computing: **2012**
- IEEE International Conference on Distributed Computing Systems (ICDCS): **2012**
- IEEE International Conference on Networks (ICON): **2012**
- International Workshop on Computing and Networking for Internet of Things (CoMNet-IoT): **2012**
- International Conference on Intelligent Environments (IE): **2012**
- 6th International Conference on Multimedia and Ubiquitous Engineering (MUE): **2012**
- IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI): **2012**
- IEEE International Conference on Distributed Computing Systems (ICDCS): **2011**
- IEEE International Conference on High Performance Computing (HiPC): **2011**
- International Conference on Communication Systems and Networks (COMSNET): **2011**
- International Workshop on Information Quality and Quality of Service for Pervasive Computing: **2011**
- IEEE International Conference on Computational Problem-Solving (ICCP): **2011**
- IEEE International Conference on Networks (ICON): **2011**
- International Workshop on Cyber Physical Systems: Integration of Cloud, Mobility and Sensing (CaPSICuMS): **2011**
- International Conference on Pervasive and Embedded Computing and Communication Systems (PECCS): **2011**
- IEEE Consumer Communications and Networking Conference (CCNC): **2011**
- International Conference on Sensor Technologies and Applications (SENSORCOMM): **2011**
- IEEE International Conference on High Performance Computing (HiPC): **2010**
- IEEE International Conference on Pervasive Computing and Communications (PerCom): **2010**
- International Workshop on Information Quality and Quality of Service for Pervasive Computing: **2010**
- International Conference on Sensor Technologies and Applications (SENSORCOMM): **2010**
- IEEE Consumer Communications and Networking Conference (CCNC): **2010**
- IEEE International Workshop on Smart Environments (SmartE): **2010**
- International Conference on Sensor Technologies and Applications (SENSORCOMM): **2009**
- IEEE Consumer Communications and Networking Conference (CCNC): **2009**
- International Conference on Parallel and Distributed Systems (ICPADS): **2009**
- International Conference on Future Information Networks (ICFIN): **2009**
- International Conference on the Latest Advances in Networks (ICLAN): **2009**
- International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM): **2009**
- International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM): **2008**

Session Chair

- IEEE International Conference on Mobile Data Management (MDM): **2015**
- IEEE International Green Computing Conference (IGCC): **2014**
- IEEE Consumer Communications and Networking Conference (CCNC): **2011**
- IEEE Consumer Communications and Networking Conference (CCNC): **2010**
- IEEE Consumer Communications and Networking Conference (CCNC): **2009**
- ACM Workshop on Medical-grade Wireless Networks (WiMD) co-located with ACM MobiHoc: **2009**

Editorial Boards and Guest

Editor

- Area Editor: Pervasive and Mobile Computing Journal, Elsevier: **2013 to present**
- Guest Editor: Pervasive and Mobile Computing Journal Special Issue on Data Mining in Pervasive Environments, Elsevier: **2014**
- Guest Editor: Pervasive and Mobile Computing Journal Special Issue on Big Data Analytics for Smarter Health Care, Elsevier: **2015**

External PhD Thesis Reviewer:

- Indian Institute of Technology (IIT) Kanpur: Department of Electrical Engineering, **Fall 2015**

Additional Reviewing

- NSF Panels: **2013, 2014, 2015**
- National Defense Science and Engineering Graduate (NDSEG) Fellowship Panel: **2015**
- Conference Reviewer: ACM Mobicom, IEEE VTC, ICDCS, ICON, ICPP, GlobeCom, HiPC, MSWiM, SECON, WoWMoM etc.
- Journal Reviewer: IEEE Transaction on Mobile Computing, Parallel and Distributed Systems, Networking, Elsevier Ad Hoc Networks, Elsevier's Pervasive and Mobile Computing, IEEE Journal of Selected Areas of Communication (JSAC), Elsevier's Journal of Parallel and Distributed Computing (JPDC), WiNET etc.

Teaching

Teaching at University of Maryland Baltimore County

- **IS 450/650: Data Communication and Networks** (Spring 2015), 40 students, Undergraduate Core and Graduate Elective, *Constellation Energy Education Award 2015: $45,000.00*

- **IS 450/650: Data Communication and Networks** (Fall 2014), 40 students, Undergraduate core and Graduate Elective, *Constellation Energy Education Award 2014: $45,000.00*

- **IS 709/809: Computational Methods in IS Research** (Spring 2014), 16 students, Graduate Core

Teaching at Washington State University, Pullman

- **CptS 223: Advanced Data Structures** (Spring 2013), 60 students, Undergraduate Core

- **CptS 555/EE 555: Computer Communication Networks** (Spring 2013), 30 students, Graduate Elective
- **CptS 122: Data Structures** (Fall 2012), 130 students, Undergraduate Core
- **CptS 223: Advanced Data Structures** (Spring 2012), 60 students, Undergraduate Core

Other Teaching Activities

- Graduate Teaching Assistant, 2002 – 2008, University of Texas at Arlington, Best Graduate Teaching Assistant Award 2007

AFFILIATIONS

- Institute of Electrical and Electronic Engineers (IEEE), Member
- Association of Computing Machinery (ACM), Member

CERTIFICATION STATEMENT

This is to certify that the information above is accurate – Nirmalya Roy

Updated: January 31, 2016