

EDUCATION

COLUMBIA UNIVERSITY, New York, NY

Ph.D., Electrical Engineering

2008 – 2013

M.Phil., Electrical Engineering

2011

- Ph.D. Thesis: Energy Harvesting Networked Nodes: Measurements, Algorithms, and Prototyping
- Advised by Prof. Gil Zussman
- GPA: 4.18/4.0

UNIVERSITY OF OTTAWA, Ottawa, ON, Canada

M.Sc., Electrical Engineering; Concentration: Computer Networks and System Security

2005 – 2007

- M.Sc. Thesis: Wormhole Attack Detection in Wireless Ad Hoc Networks
- Advised by Prof. Peter Mason and Prof. Ramiro Liscano
- GPA: 98/100

B.Sc., Electrical Engineering, Concentration: Systems Engineering

2000 – 2004

- *Summa Cum Laude*; GPA: 92/100; Major GPA: 98/100

SELECTED AWARDS AND HONORS

IEEE Communications Society Young Author Best Paper Award

2016

Columbia University Jury Award for Outstanding Achievement in Communications

2013

MIT EECS Rising Star

2013

Google Inc. Anita Borg USA Fellowship

2012

ACM SenSys Best Student Demonstration Award

2011

IEEE Communications Society Award for Advances in Communications

2011

ACM MobiSys Ph.D. Forum Best Speaker Award

2011

Finalist, Microsoft Research Ph.D. Fellowship

2011

Columbia University Presidential Fellowship

2008 – 2013

Alexander Graham Bell Canada Graduate NSERC CGS-D Scholarship, Ph.D. studies

2008 – 2010

Canada Graduate NSERC CGS-M Scholarship, M.Sc. studies

2005 – 2007

Ontario Graduate Fellowship (declined)

2005 – 2007

Xerox Canada Inc. Fellowship

2004

SELECTED EXPERIENCE

DUKE UNIVERSITY, Durham, NC

2018 – present

Assistant Professor, Electrical and Computer Engineering and Computer Science Departments

Leading the Intelligent Interactive Internet of Things (I³T) Lab at Duke University Department of Electrical and Computer Engineering.

PRINCETON UNIVERSITY, Princeton, NJ

2016 – 2018

Associate Director, Princeton EDGE Lab (2017 – 2018)

Associate Research Scholar, Electrical Engineering Department

Senior member of the EDGE lab led by Prof. Mung Chiang. Defining architectures and algorithms for fog computing, an emerging paradigm in which computing is placed at multiple locations between the endpoint Internet of Things devices and the cloud.

- Developed new techniques for fog-specific computing program restructuring and new approaches to service placements in distributed fog architectures. Designed and carried out a first quantitative study of service architecture primitives in distributed heterogeneous fog computing platforms with server-based and serverless execution options of multiple quality levels.

MARIA GORLATOVA: CURRICULUM VITAE

- Designed and led the development of a fog computing testbed for algorithm evaluation, spanning both local hardware and cloud computing elements (Raspberry Pis, Sense HATs, AWS Lambda, DynamoDB, EC2). Demonstrated the testbed at 3 conferences.
- Secured new research funding from Microsoft (Principal Investigator) and the Defense Advanced Research Projects Agency (DARPA) (Senior Personnel). Managed ongoing funding engagements with Comcast Corporation, BAE Systems, and LGS Innovations.
- Transferred research to industry via active involvement in the OpenFog Consortium that has over 50 industry-leading members including Intel, CISCO, Microsoft, ARM, Dell, Hitachi, and Foxconn. Co-chaired the Communications Working Group of the Consortium (elected position). Contributed to the OpenFog Reference Architecture that has been fast-tracked for adoption as an IEEE standard. Led the development of OpenFog communications and networking APIs. Co-led the development of a framework outlining fog computing support for autonomous driving.

D. E. SHAW RESEARCH, New York, NY

2014 – 2016

Engineering Program Manager, reporting to company's top engineering executive.

Led a \$20mln+ custom Anton supercomputer design and development program. Managed activities of a cross-functional team of 40+ research scientists and hardware and software engineers (technical areas: ASICs, advanced PCBs, network architecture, software). Recognized as an outstanding contributor (top 10%) in all performance appraisals.

- Developed an ambitious but realistic 5+ year product development plan by balancing design, manufacturing, and datacenter operations tradeoffs. Successfully executed 1.5 year design specification and partner selection phases of the plan.
- Drove product definition, vendor selection, and build/buy/partner decisions. Defined multi-year program roadmaps, created and managed schedules and program KPIs, managed program risks.
- Defined, promoted, and executed organizational changes required for achieving program goals. Recruited, trained, mentored, and supervised 2 associate project managers.

IBM, Armonk, NY

2014

Senior Strategy Consultant, Corporate Headquarters, IBM Chief Economist's Office.

Applied advanced data analytics techniques to the most pressing challenges faced by the company. Focused on both the development of analytics tools and on changing the associated corporate practices.

- Led a \$500,000+ identity management data analytics project with IBM C-suite visibility. Directed a team of 5 business analysts and software developers from internal and external teams.
- Designed and developed SPSS-based sales fraud detection toolset data quality KPI tracking modules. Presented regular KPI updates to senior executives from IT, Legal, Software Sales, and Hardware Sales teams.
- Carried out a high-priority cross-functional sales fraud detection toolset design and development project. Launched market-tailored toolsets in several growth markets including Turkey, Russia, and South Africa. Developed and led toolset training sessions for offshore sales support teams.

COLUMBIA UNIVERSITY, New York, NY

2008 – 2013

Research Assistant and Presidential Fellow, Electrical Engineering Department

Founding member of an ambitious Energy Harvesting Active Networked Tags project (EnHANTs, enhants.ee.columbia.edu) dedicated to enabling digital networking of commonplace objects – the Internet of Things.

- Led student effort in designing and developing a prototype and a first-of-its-kind prototype testbed for the Energy Harvesting Active Networked Tags project that involves 5 faculty members and over 50 students in the Electrical Engineering and Computer Science departments. Mentored and supervised more than 25 students from high school, undergraduate and M.S. Electrical Engineering and Computer Science programs.
- Designed, developed, and evaluated resource allocation and networking algorithms for networks of low-power wireless energy harvesting nodes.
- Designed and orchestrated a first-of-its-kind 1.5-year-long indoor light energy study using a custom-designed sensor system. Designed and orchestrated an innovative measurement-based study of object and human motion energy. Examined statistical properties of the energy based on acceleration traces for 9 motions of 40+ participants. Shared the obtained datasets with the community via CRAWDDAD.

TELCORDIA TECHNOLOGIES (Fortune 500 telecom R&D company), Piscataway, NJ 2007 – 2008
Research Scientist, Telcordia Applied Research
Examined network performance and security topics for US Department of Defense clients.

- Led one of 7 in-house R&D teams jointly designing and developing a secure wireless ad hoc system architecture for a multi-million dollar DARPA project.
- Designed, developed and integrated CSMA-based, TDMA-based, and hybrid MAC modules for a comprehensive in-house-developed network design tool. Provided in-depth analysis on applicability of tools and technologies (OPNET, NS-2, MAC and networking protocols) to the needs of the US Department of Defense clients.

DEFENSE R&D CANADA (Scientific agency of the Department of National Defense), Ottawa, ON 2004 – 2007
Research Scientist (2006 – 2007), Research Assistant (2004 – 2005), Network Information Operations
Examined a range of network layer and medium access layer wireless network security topics (ad hoc network routing attacks, encryption, stealthy localization).

- Designed and developed new cross-layer network analysis techniques for attack detection in wireless networks.
- Designed, developed, tested, and integrated network simulation and network traffic analysis modules using MATLAB, NS-2, C, and Perl.

SELECTED TEACHING EXPERIENCE

ECE 590 / COMPSCI 590, Advanced Topics in ECE/CS: Edge Computing Fall 2018

- Graduate seminar designed and developed.
This seminar-format class explores opportunities and challenges associated with edge computing, the diffusion of centralized cloud computing functionality to include resource-constrained systems in physical proximity to the users, such as cloudlets, mobile phones, and smart gateways. The course surveys recent advances in edge computing and its role in enabling the next generation of the Internet of Things and the smart cities of the future. Students learn the strengths and the limitations of edge computing systems, and explore a range of algorithm and system adaptation techniques for developing edge-specific platforms, algorithms, and applications. Students complete an individual or a team-based research project, theory-oriented or applied.

SELECTED PROFESSIONAL ACTIVITIES

Technical Program Committee (TPC) chair, IEEE Sarnoff Symposium 2019

Track chair, Internet of Things track, ABI Grace Hopper Celebration of Women in Computing 2016 – 2018

General chair, ACM MobiSys Ph.D. Forum 2012

Co-chair, Communications Working Group, OpenFog Consortium (**elected position**) 2016 – 2017

Fellowship awards co-chair, board member, N² Women 2016 – 2017

TPC member, recent:

- IEEE Conference on Computer Communications (IEEE INFOCOM) 2016 – 2019
- ACM MobiHoc 2019
- ACM/IEEE ICCPS 2019
- IEEE International Conference on Fog Computing 2019
- IEEE GLOBECOM SAC - Internet of Things 2019
- IFIP Performance 2018
- ACM/SIGBED Embedded Wireless Systems and Networks (EWSN) 2018
- IEEE Symposium on Local and Metropolitan Area Networks (IEEE LANMAN) 2018
- IEEE International Conference on Fog and Edge Computing 2018
- IEEE Conference on Sensing, Communication and Networking (IEEE SECON) 2016, 2018, 2019
- IEEE/IFIP Wireless On-demand Network Systems and Services (WONS) 2017, 2018

MARIA GORLATOVA: CURRICULUM VITAE

IEEE WiMAN, co-located with IEEE ICCCN	2014, 2016 – 2018
TPC member, previous: IEEE Fog World Congress 2017, IEEE Vehicular Technology Conference (IEEE VTC), M2M/Sensor Networks Track 2016, 2017, ACM ENSSys, co-located with ACM SenSys 2014, IEEE EnHaNSS, co-located with IEEE INSS 2012.	
National grant agency service:	
US National Science Foundation (NSF): panelist, communications and networking	2015, 2017
US National Science Foundation (NSF): panelist, algorithms and systems	2016, 2017
Israel Science Foundation (ISF): external reviewer	2016, 2017
Judge, industry recognitions:	
Consumer Electronics Show (CES) Innovation Awards	2016 – 2019
Consumer Electronics Show (CES) Asia Innovation Awards	2017
Technical adviser:	
All Inspire Health (an Internet of Things startup)	2016 – 2017
Fit A.I. (an Internet of Things startup)	2016 – 2017
Reviewer, journals: IEEE Transactions on Wireless Communications 2018, 2017, 2010 – 2015, IEEE Transactions on Sustainable Computing 2018, IEEE Transactions on Mobile Computing 2017, 2011, IEEE Communications Magazine 2016, IEEE Transactions on Power Electronics 2016, IEEE Network Magazine 2015, 2016, IEEE Journal on Selected Areas in Communications 2015, IEEE Sensors 2013, IEEE/ACM Transactions on Networking 2009 – 2012, ACM Transactions on Sensor Networks 2012, IEEE Transactions on Parallel and Distributed Systems 2009 – 2010.	

SELECTED MENTORSHIP

Postdoctoral associates:	
Guohao Lan	2018 – present
Ph.D. students:	
Jun Li, KTH, visiting student at Princeton University	2018 – present
Robert Margolies, Columbia University	2011 – 2013
M.S. students:	
Zida Liu, Duke University	2019 – present
Nisarg Dabhi, Duke University	2018 – present
Litian Liu, Princeton University	2016 – 2017
Edward Chang, National Chiao Tung University, visiting student at Princeton University	2017
Gerald Stanje, University of Klagenfurt, visiting student at Columbia University	2011 – 2013
Haodan Huang, Columbia University	2011 – 2012
Zainab Noorbhaiwala, Columbia University	2010 – 2011
Sonal Shetkar, Columbia University	2010 – 2011
Tarun Sharma, Columbia University	2009 – 2010
Enlin Xu, Columbia University	2009 – 2010
Shashang Melkote, Columbia University	2009
Aimee Paung, Columbia University	2009
Ellen Shlossberg, Columbia University	2009
Dan Lynch, Royal Military College of Canada, visiting student at Defense R&D Canada	2006 – 2007
B.S. students:	
Kunaal Sharma, Duke University	2019 – present
Joseph DeChicchis, Duke University	2019 – present
Madeline Wilkinson, Duke University	2019 – present

MARIA GORLATOVA: CURRICULUM VITAE

Michael Glushakov, Duke University	2018 – present
Surin Ahn, Princeton University. Stanford University Graduate Fellowship	2017 – 2018
Chege Gitau, Princeton University	2016 – 2017
Christian Bernstein, Berlin School of Economics and Law, IBM co-op term	2014
Ishaan Sayal, PEC University of Technology, visiting student at Columbia University	2013
Kangwan Kim, Cooper Union, visiting student at Columbia University	2012 – 2013
Luis Pena, Columbia University	2012 – 2013
Mina Cong, Columbia University. Electrical Engineering Department Research Award	2011 – 2013
Albert Maldonado, University of Puerto Rico, visiting REU student at Columbia University	2012
Michael Zapas, Columbia University	2010 – 2011
Hari Subedi, University of Arizona, visiting REU student at Columbia University	2010
Mark Kelly, University of Ottawa, Defense R&D Canada co-op term	2006

B.S. independent project reader, Princeton University: Surin Ahn, 2018, Akash Levy, 2018

High school students:

Chang Sun	2011 – 2012
Shakhul Hai	2009

Programs for involving high school and undergraduate students in research:

NSF Center for Integrated Access Networks REU Site	2010, 2012
Harlem Children Society	2009, 2011 – 2012

RESEARCH GRANTS

Current:

[NSF18] *Principal Investigator*, NSF CSR-1812797, "Small: Collaborative Research: Multi-tier Service Architecture in IoT-Edge-Cloud-Paradigms", 2018 – 2021. A collaborative Yale University (PI Wenjun Hu) and Duke University (PI Maria Gorlatova) proposal. Duke University portion \$38,872.

[DARPA18BAE] *Senior Personnel*, Defense Advanced Research Projects Agency (DARPA) Dispersed Computing (DCOMP) Network Back-haul Layered Architecture (NEBULA) program. A \$36,520 subcontract to Princeton University under the NEBULA program led by BAE Systems. 2018 – 2019.

[AWS18] *Principal Investigator*, Amazon Web Services Cloud Credits for Research: Optimizing Fog-based IoT Systems. Equivalent of \$4,800 in Amazon Web Services Cloud computing credits. Co-PI Liang Zhang. 2018 – 2019.

Previous:

[AZURE17] *Principal Investigator*, Microsoft Azure Research Award, Internet of Things: Optimizing Fog-based IoT Systems. Equivalent of \$20,000 in Microsoft Azure computing credits. Co-PIs Liang Zhang, Mung Chiang. 2017 – 2018.

[DARPA17BAE] *Senior Personnel*, Defense Advanced Research Projects Agency (DARPA) Dispersed Computing (DCOMP) Network Back-haul Layered Architecture (NEBULA) \$9.7 mln award led by BAE Systems with subcontractors from Princeton University, MIT, NYU, CMU and LGS Innovations. 2017 – 2018.

[DARPA17LGS] *Senior Personnel*, Defense Advanced Research Projects Agency (DARPA) Dispersed Computing (DCOMP) Dispersed Computing via Successive Refinement and Pricing with Resilience and Scale (DSPRS) \$7.6 mln award led by LGS Innovations with subcontractors from Princeton University, University of Colorado Boulder, and BAE Systems. 2017 – 2018.

Travel grants: IEEE INFOCOM 2013, ACM SIGCOMM 2012, IEEE PerCom 2012, ABI Grace Hopper 2012, ACM SenSys 2011, ACM MobiSys 2011, ACM MobiCom 2010, IEEE SECON 2010, ACM MobiCom 2009.

PATENTS

[Patent14] S. Mangold, R. Aiello, **M. Gorlatova**, System and Method for Managing Location Services in Wireless Networks, Disney Research Zurich, Patent # US 2014/032,3150.

CONTRIBUTIONS TO INDUSTRY STANDARDS

[OpenFog17] OpenFog Consortium Reference Architecture, Feb. 2017. Adopted as the **IEEE 1934 standard**, June 2018.

PUBLICATIONS

Book Chapters

[ToAppearWiley19] Y. Ruan, L. Zheng, **M. Gorlatova**, M. Chiang, C. Joe-Wong, The Economics of Fog Computing: Pricing Tradeoffs for Distributed Data Analytics, *Fognet and Fogonomics: Challenges and Practices of Fog Computing, Networking, Strategy and Economics*, Wiley, in print, to appear in Q1 2019. (**invited book chapter**).

Journal Publications

[IOT18] H. Inaltekin, **M. Gorlatova**, M. Chiang, Virtualized Control over Fog: Interplay between Reliability and Latency, *IEEE Internet of Things Journal*, Vol. 5, No. 6, 2018.

[TOSN15] R. Margolies, **M. Gorlatova**, J. Sarik, G. Stanje, J. Zhu, P. Miller, M. Szczodrak, B. Vignham, L. Carloni, P. Kinget, I. Kymissis, G. Zussman, Energy Harvesting Active Networked Tags (EnHANTs): Prototyping and Experimentation, *ACM Transactions on Sensor Networks*, Vol. 11, No. 4, Nov. 2015.

[JSAC15] **M. Gorlatova**, J. Sarik, G. Grebla, M. Cong, I. Kymissis, G. Zussman, Movers and Shakers: Kinetic Energy Harvesting for the Internet of Things, *IEEE Journal on Selected Areas in Communications*, Vol. 33, No. 9, 2015.

[TMC13] **M. Gorlatova**, A. Wallwater, G. Zussman, Networking Rechargeable Low-Power Devices: Measurements and Algorithms, *IEEE Transactions on Mobile Computing*, Vol. 12, No. 9, Sept. 2013.
2016 IEEE Communications Society Young Author Best Paper Award.

[WirComm10] **M. Gorlatova**, P. Kinget, I. Kymissis, D. Rubenstein, X. Wang, G. Zussman, Energy Harvesting Active Networked Tags for Ubiquitous Object Networking, *IEEE Wireless Communications Magazine*, Vol. 17, No 6, pp. 18-25, Dec. 2010.

2011 IEEE Communications Society Award for Advances in Communications.

Selected media coverage: IEEE Comm. Technology News Editor-in-Chief's **top 3 pick for 2014.**

Conference Proceedings

[INFOCOM19] P. Naghizadeh, **M. Gorlatova**, A. Lan, M. Chiang, Hurts to be Too Early: Benefits and Drawbacks of Communication in Multi-Agent Learning, to appear in Proc. *IEEE INFOCOM'19*, Paris, France, May 2019.

[URTC17] S. Ahn, **M. Gorlatova**, M. Chiang, Leveraging Fog and Cloud Computing for Efficient Computational Offloading, in Proc. 3rd IEEE MIT Undergraduate Research Technology Conference (*IEEE URTC'17*), Cambridge, MA, Nov. 2017.

[Sigmetrics14] **M. Gorlatova**, J. Sarik, G. Grebla, M. Cong, I. Kymissis, G. Zussman, Movers and Shakers: Kinetic Energy Harvesting for the Internet of Things, in Proc. 41st *ACM SIGMETRICS'14*, Austin, TX, July 2014 (**~17% acceptance rate**). **Selected media coverage: MIT Technology Review 2014, New Yorker Magazine 2017.**

[ITiCSE13] **M. Gorlatova**, J. Sarik, P. Kinget, I. Kymissis, G. Zussman, Project-Based Learning within a Large-Scale Interdisciplinary Research Effort, in Proc. 18th ACM Conference on Innovation and Technology in Computer Science Education (*ACM ITiCSE'13*), Canterbury, UK, July 2013.

[Infocom13] **M. Gorlatova**, R. Margolies, J. Sarik, G. Stanje, J. Zhu, B. Vignham, M. Szczodrak, L. Carloni, P. Kinget, I. Kymissis, G. Zussman, Prototyping Energy Harvesting Active Networked Tags (EnHANTs), in Proc. 32nd IEEE Conference on Computer Communications (*IEEE INFOCOM'13*), Turin, Italy, Apr. 2013.

- [**WiOpt11**] **M. Gorlatova**, A. Bernstein, G. Zussman, Performance Evaluation of Resource Allocation Policies for Energy Harvesting Devices, in Proc. 9th IEEE Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (*IEEE WiOpt'11*), Princeton, NJ, May 2011.
- [**Infocom11**] **M. Gorlatova**, A. Wallwater, G. Zussman, Networking Rechargeable Low-Power Devices: Measurements and Algorithms, in Proc. 30th IEEE Conference on Computer Communications (*IEEE INFOCOM'11*), Shanghai, China, Apr. 2011 (~16% acceptance rate).
- [**Milcom11**] **M. Gorlatova**, R. Aiello, S. Mangold, Managing Base Station Location Privacy, in Proc. 30th IEEE Military Communications Conference (*IEEE MILCOM'11*), Baltimore, MD, Nov. 2011.
- [**MobiCom09**] **M. Gorlatova**, P. Kinget, I. Kymissis, D. Rubenstein, X. Wang, G. Zussman, Challenge: Ultra-Low-Power Energy Harvesting Active Networked Tags, in Proc. 15th ACM Conference on Mobile Computing and Networking (*ACM MobiCom'09*), Beijing, China, Sept. 2009 (~10% acceptance rate).
- [**ASC08**] D. Lynch, S. Knight, **M. Gorlatova**, Y. Lacharite, L. Lamont, R. Liscano, P. Mason, Providing Effective Security in Mobile Ad Hoc Networks without Affecting Bandwidth or Interoperability, in Proc. 25th Army Science Conference (*ASC'08*), Orlando, FL, Dec. 2008.
- [**Milcom08**] L. Kant, K. Chang, A. McAuley, K. Manousakis, O. Younis, **M. Gorlatova**, K. Young, C. Graff, NEDAT: A Toolset to Design and Analyze Future Force Networks, in Proc. 27th IEEE Military Communications Conference (*IEEE MILCOM'08*), San Diego, CA, Nov. 2008.
- [**SecureComm07**] **M. Gorlatova**, M. Kelly, R. Liscano, P. Mason, Enhancing Frequency-Based Wormhole Attack Detection with Novel Jitter Waveforms, in Proc. 5th ICST Conference on Security and Privacy in Communication Networks (*ICST SecureComm'07*), Nice, France, Sept. 2007.
- [**Milcom06**] **M. Gorlatova**, P. Mason, M. Wang, L. Lamont, R. Liscano, Detecting Wormhole Attacks in Mobile Ad Hoc Networks through Protocol Breaking and Packet Timing Analysis, in Proc. 25th IEEE Military Communications Conference (*IEEE MILCOM'06*), Washington, DC, Oct. 2006.

Workshop Proceedings

- [**ARVR18**] S. Ahn, **M. Gorlatova**, P. Naghizadeh, M. Chiang, P. Mittal, Adaptive Fog-based Output Security for Augmented Reality, in Proc. *ACM SIGCOMM VR/AR Network Workshop*, Budapest, Hungary, Aug. 2018.
- [**Iofc11**] **M. Gorlatova**, R. Aiello, S. Mangold, Managing Location Privacy in Cellular Networks with Femtocell Deployments, in Proc. 3rd IEEE Workshop on Indoor and Outdoor Femtocells (*IEEE IOFC'11*), Princeton, NJ, May 2011 (co-located with *IEEE WiOpt'11*).
- [**NPSec05**] M. Wang, L. Lamont, P. Mason, **M. Gorlatova**, An Effective Intrusion Detection Approach for the Optimized Link State Routing (OLSR) Mobile Ad hoc Networking Protocol, in Proc. 1st IEEE Workshop on Secure Network Protocols (*IEEE NPSec'05*), Boston, MA, Nov. 2005 (co-located with *IEEE ICNP'05*).

Conference Demonstrations

- [**SenSys17**] T. Chang, L. Zheng, **M. Gorlatova**, C. Gitau, C. Huang, M. Chiang, Demo: Decomposing Data Analytics in Fog Networks, in Proc. 15th ACM Conference on Embedded Networked Sensor Systems (*ACM SenSys'17*), Delft, Netherlands, Nov. 2017. Video of the demo: https://youtu.be/nz_s5gSvMBo
- [**FWC17**] L. Zheng, **M. Gorlatova**, A. Lan, C. Gitau, M. Chiang, Demo: Decomposing Complex Data Analytics in Fog Computing, *IEEE Fog World Congress*, Santa Clara, CA, Oct. 2017 (**invited demonstration**).
- [**NYCMediaLab17**] L. Zheng, **M. Gorlatova**, C. Gitau, M. Chiang, Demo: Decomposing Complex Data Analytics in Fog Computing, *NYC Media Lab Summit*, New York City, NY, Sept. 2017.
- [**Infocom13**] R. Margolies, L. Pena, K. Kim, Y. Kim, M. Wang, **M. Gorlatova**, J. Sarik, J. Zhu, P. Kinget, I. Kymissis, and G. Zussman, Demo: An Adaptive Testbed of Energy Harvesting Active Networked Tag Prototypes, in Proc. 32nd IEEE Conference on Computer Communication (*IEEE INFOCOM'13*), Turin, Italy, Apr. 2013.

- [**IDTechEx12**] J. Sarik, L. Pena, M. Wang, K. Kim, H. Wang, F. Duque, G. Burrow, R. Margolies, **M. Gorlatova**, B. Vignraham, P. Kinget, I. Kymissis, and G. Zussman, Demo: Energy Harvesting Active Network Tag Prototypes and Prototype Testbed, *IDTechEx Energy Harvesting and Storage USA Conference and Trade Show*, Washington, DC, Nov. 2012 (**invited demonstration**).
- [**SenSys11**] G. Stanje, P. Miller, J. Zhu, A. Smith, O. Winn, R. Margolies, **M. Gorlatova**, J. Sarik, M. Szczodrak, B. Vignraham, L. Carloni, P. Kinget, I. Kymissis, and G. Zussman, Demo: Organic Solar Cell-Equipped Energy Harvesting Active Networked Tag Prototypes, in Proc. 9th ACM Conference on Embedded Networked Sensor Systems (*ACM SenSys'11*), Seattle, WA, Nov. 2011. [Video of the demo](https://www.youtube.com/watch?v=QFCf62IBATI): <https://www.youtube.com/watch?v=QFCf62IBATI>
ACM SenSys'11 Best Student Demonstration Award.
- [**MobiSys11**] J. Zhu, G. Stanje, R. Margolies, **M. Gorlatova**, J. Sarik, Z. Noorbhaiwala, P. Miller, M. Szczodrak, B. Vignraham, L. Carloni, P. Kinget, I. Kymissis, G. Zussman, Demo: Prototyping UWB-Enabled Energy Harvesting Active Networked Tags, in Proc. 9th ACM Conference on Mobile Systems, Applications, and Services (*ACM MobiSys'11*), Washington, DC, June 2011.
- [**MobiCom10**] **M. Gorlatova**, J. Chen, M. Szczodrak, E. Xu, A. Skolnik, A. Schwartz, Z. Noorbhaiwala, M. Zapas, L. Carloni, P. Kinget, I. Kymissis, D. Rubenstein, G. Zussman, Demo: Prototyping Energy Harvesting Active Networked Tags: Phase II MICA Mote-Based Devices, 16th ACM Conference on Mobile Computing and Networking (*ACM MobiCom'10*), Chicago, IL, Sept. 2010.
- [**Seccon10**] **M. Gorlatova**, T. Sharma, D. Shrestha, E. Xu, J. Chen, A. Skolnik, D. Piao, P. Kinget, I. Kymissis, D. Rubenstein, G. Zussman, Demo: Prototyping Energy Harvesting Active Networked Tags with MICA2 Motes, in Proc. 7th IEEE Conference on Sensing, Communication, and Networking (*IEEE SECON'10*), Boston, MA, June 2010.

Selected Poster Presentations

- [**Facebook18**] **M. Gorlatova**, C. Joe-Wong, P. Naghizadeh, R. Younes, J. Chen, M. Chiang, Intelligent Augmented Reality with Edge Computing, 1st Facebook Connectivity Lab Research Workshop, Dec. 2018 (**invited participant**).
- [**PrincetonRD17**] S. Ahn, **M. Gorlatova**, M. Chiang, Leveraging Fog and Cloud Computing for Efficient Computational Offloading, Princeton Research Day, Princeton, NJ, May 2017.
- [**Columbia14**] G. Grebla, **M. Gorlatova**, J. Sarik, M. Cong, I. Kymissis, G. Zussman, Movers and Shakers: Kinetic Energy Harvesting for the Internet of Things, Columbia University Postdoc Research and Career Symposium, Aug. 2014. **Top 10 poster award.**
- [**GlobalSIP13**] J. Sarik, K. Kim, **M. Gorlatova**, I. Kymissis, G. Zussman, More than Meets the Eye – a Portable Measurement Unit for Characterizing Light Energy Availability, in Proc. 1st IEEE Global Conference on Signal and Information Processing (*IEEE GlobalSIP'13*) Symposium on Energy Harvesting and Green Wireless Communications, Austin, TX, Dec. 2013 (**invited paper**).
- [**Google12**] **M. Gorlatova**, P. Kinget, I. Kymissis, D. Rubenstein, X. Wang, G. Zussman, Energy Harvesting Active Networked Tags for Ubiquitous Object Networking: Challenges and Solutions, Google Scholars Retreat, July 2012 (**invited participant**).
- [**Photovoltaic12**] Y. Afsar, J. Sarik, **M. Gorlatova**, G. Zussman, I. Kymissis, Poster: Evaluating Photovoltaic Performance Indoors, in Proc. 38th IEEE Photovoltaic Specialist Conference (*IEEE PVSC'12*), Austin, TX, June 2012.
- [**Infocom11**] S. Schmid, **M. Gorlatova**, D. Giustiniano, V. Vukadinovic, S. Mangold, Poster: Networking Smart Toys with ToyTalk and ToyBridge, in Proc. 30th IEEE Conference on Computer Communications (*IEEE INFOCOM'11*), Shanghai, China, Apr. 2011.

Datasets

- [**Crowdad14**] M. Cong, K. Kim, **M. Gorlatova**, J. Sarik, I. Kymissis, G. Zussman, Human Motion for the Internet of Things Kinetic Energy Dataset, Community Resource for Archiving Wireless Data At Dartmouth (CRAWDAD), May 2014.
- [**Crowdad11**] **M. Gorlatova**, M. Zapas, E. Xu, M. Bahlke, I. Kymissis, G. Zussman, Indoor Light Energy Measurements Dataset, Community Resource for Archiving Wireless Data At Dartmouth (CRAWDAD), Apr. 2011.

Selected Technical Reports and Proprietary Publications

ArXiv:

- [ArXiv18] **M. Gorlatova**, H. Inaltekin, M. Chiang, Characterizing Task Completion Latencies in Fog Computing, arXiv:1811.02638, Nov. 2018.
- [ArXiv17] H. Inaltekin, **M. Gorlatova**, M. Chiang, Virtualized Control over Fog: Interplay between Reliability and Latency, arXiv:1712.00100, Nov. 2017.
- [ArXiv14] R. Margolies, **M. Gorlatova**, J. Sarik, P. Kinget, I. Kymissis, G. Zussman, Project-Based Learning within a Large-Scale Interdisciplinary Research Effort, arXiv: 1410.6935, Oct. 2014.
- [ArXiv13] **M. Gorlatova**, J. Sarik, M. Cong, I. Kymissis, G. Zussman, Movers and Shakers: Kinetic Energy Harvesting for the Internet of Things, arXiv:1307.0044, July 2013. **Selected media coverage: MIT Technology Review 2013.**

Industry whitepapers:

- [OFC17] H. Moustafa, **M. Gorlatova**, C. Byers, E. Schooler, K. Walcott, J. Acharya, A. Mosenia, B. Murthy, C. Vasters, S. Kambhatla, OpenFog Consortium Fog Use Case Scenarios: Autonomous Driving, Oct. 2017.

Other:

Columbia University Department of Electrical Engineering: 3 technical reports (first author).

Telcordia Technologies: 3 technical reports submitted to the US Department of Defense clients (coauthor).

Defense R&D Canada: 7 technical reports (4 first author, 3 coauthor).

SELECTED INVITED TALKS

Conferences and Workshops

Intelligent Augmented Reality with Edge Support:

- Princeton Edge Lab 10th Year Celebration, Princeton, NJ, Apr. 2019.
- BioIT World Conference, Boston, MA, Apr. 2019.

Towards Intelligence on the Edge: Restructuring Computing to Enable the Next Generation of the IoT:

- Industrial Internet Consortium (IIC) Technology Working Group meeting, Raleigh, NC, Feb. 2019
- IEEE Fog World Congress, San Francisco, CA, Oct. 2018.
- IEEE Sarnoff Symposium, Newark, NJ, Sept. 2018.

Light, Motion, Fog: Networking Commonplace Objects with Energy Harvesting and Fog Computing:

- **Keynote speaker**, ACM Workshop on Energy Harvesting and Energy Neutral Systems (*ACM ENSys*), co-located with *ACM SenSys'17*, Delft, Netherlands, Nov. 2017.

Fog Computing: Challenges and Solutions:

- ABI Grace Hopper Celebration of Women in Computing, Orlando, FL, Oct. 2017.

The OpenFog Reference Architecture: Unified Framework and a Roadmap:

- *Through the Fog Workshop*, University of Pisa, Pisa, Italy, Feb. 2017.

Energy Harvesting Active Networked Tags for Ubiquitous Object Networking: Challenges and Solutions:

- *Wireless Energy Transfer and Scavenging Techniques Workshop*, IEEE Microwave Symposium (*IEEE IMS'12*), Montreal, QC, Canada, June 2012.
- ACM Conference on Mobile Systems, Applications, and Services (*ACM MobiSys'11*) Ph.D. Forum, Bethesda, MD, June 2011.
- *IDTechEx Energy Harvesting and Storage USA'10 Conference*, Boston, MA, Nov. 2010.

Selected Academic and Industrial Seminars

Life on the Edge: Connecting Everyday Objects with Energy Harvesting and Fog Computing:

- *University of Toronto Department of Electrical and Computer Engineering*, Apr. 2018.
- *University of Toronto Department of Computer Science*, Apr. 2018.
- *University of Virginia School of Engineering and Applied Science*, Mar. 2018.
- *University of Minnesota Twin Cities Department of Computer Science and Engineering*, Mar. 2018.
- *Cornell University Department of Electrical and Computer Engineering*, Mar. 2018.
- *Cornell Tech*, Mar. 2018.
- *Northeastern University Department of Electrical and Computer Engineering*, Mar. 2018.
- *University of Pennsylvania Department of Electrical and Systems Engineering*, Mar. 2018.
- *University of Victoria Department of Computer Science*, Mar. 2018.
- *Yale University Departments of Electrical Engineering and Computer Science*, Mar. 2018.
- *University of Wisconsin at Madison, Electrical and Computer Engineering Department*, Feb. 2018.
- *Duke University Pratt School of Engineering*, Durham, NC, Feb. 2018.
- *George Washington University Department of Electrical Engineering*, Washington, DC, Feb. 2018.

The Most Interesting Part of Cloud Computing: Fog Computing Enabling the Next Generation of the Internet of Things:

- *BAE Systems Tech Talk*, Burlington, MA, Sept. 2017.

In and Out of the Fog: Working with Industry to Define New Computing Architectures:

- *Princeton University Postdoctoral Council Seminar Series*, Princeton, NJ, June 2017.

Towards Networking Commonplace Objects:

- *UC Santa Barbara Department of Electrical and Computer Engineering*, Santa Barbara, CA, Mar. 2017.
- *Princeton University Department of Electrical Engineering EDGE Lab*, Princeton, NJ, June 2016.
- *Carnegie Mellon University Department of Electrical and Computer Engineering*, Pittsburgh, PA, June 2016.
- *Fujitsu Laboratories of America*, Sunnyvale, CA, May 2016.

Energy Harvesting Active Networked Tags for Ubiquitous Object Networking:

- *Imperial College London Department of Electrical Engineering*, London, United Kingdom, July 2013.
- *Microsoft Research*, Seattle, WA, Mar. 2013.
Talk video available at <http://research.microsoft.com/apps/video/default.aspx?id=188869>
- *Qualcomm, Systems Engineering Group Seminar Series*, San Diego, CA, Feb. 2013.
- *AT&T, Technology Security Group*, New York, NY, Jan. 2013.
- *IEEE Ottawa Signal Processing Society*, Ottawa, ON, Canada, Nov. 2012.
- *Walt Disney Research Zurich*, Zurich, Switzerland, Mar. 2012.
- *Defense R&D Canada, Network Information Operations Group Seminar Series*, Ottawa, ON, Canada, May 2011.
- *Telcordia Technologies Applied Research*, Piscataway, NJ, Dec. 2010.

Wormhole Attack Detection in Wireless Ad Hoc Networks:

- *University of British Columbia Department of Electrical Engineering*, Vancouver, BC, Canada, Feb. 2007.

Panel Presentations

[FWC17a] Fog to the Rescue: Restructuring Computing to Take Advantage of Fog, IEEE Fog World Congress (*IEEE FWC'17*), Santa Clara, CA, Nov. 2017.

[FWC17b] Elements of an Open, Interoperable Architecture in Fog, IEEE Fog World Congress (*IEEE FWC'17*), Santa Clara, CA, Oct. 2017.

Panel video available at: <https://ieeetv.ieee.org/conference-highlights/elements-of-an-open-interoperable-architecture-for-fog-fog-world-congress-2017>

[NYCMeetup17] Fog Computing and the Internet of Things, *IoT Central NYC Meetup*, New York City, NY, Apr. 2017.

MARIA GORLATOVA: CURRICULUM VITAE

Talk video available at: <https://youtu.be/f8wBfOkfa6M?t=24m6s>

Invited Lectures

[**Columbia13**] Characterizing New Environmental Energy Sources for the Internet of Things, *Columbia University Undergraduate Computer Science and Statistics STATW100 Seminar*, New York, NY, Nov. 2013.

Podcasts

[**SERadio18**] On Edge Computing, *Software Engineering Radio Podcast*, Aug. 2018

Podcast audio available at: <http://www.se-radio.net/2018/08/se-radio-episode-335-maria-gorlatova-on-edge-computing/>

[**Embedded17**] When Toasters Attack, *Embedded.fm Podcast*, Dec. 2017.

Podcast audio available at: <http://embedded.fm/episodes/225>

UNIVERSITY SERVICE

Departmental committees:

Faculty Search Committee, Computer Science Dept., Duke University	2018 – 2019
Undergraduate Studies Committee, Electrical and Computer Engineering Dept., Duke University	2018 – 2019

PhD thesis committees:

Kent Nixon, Electrical and Computer Engineering Dept., Duke University, 2018 - present.
Adviser Y. Chen. Preliminary exam: Feb. 2019

Rana Elnaggar, Electrical and Computer Engineering Dept., Duke University, 2018 - present.
Adviser K. Chakrabarty. Preliminary exam: Jan. 2019

Shengbao Zheng, Computer Science Dept., Duke University, 2018 - present.
Adviser X. Yang. Preliminary exam: Dec. 2018

Qualifying exams:

Fan Chen, Electrical and Computer Engineering Dept., Duke University, Oct. 2018. Adviser Y. Chen.
Jiachen Mao, Electrical and Computer Engineering Dept., Duke University, Oct. 2018. Adviser Y. Chen.

Other:

M.S. final exam poster session committee, Duke University Electrical and Computer Engineering Dept.	2018
B.S. independent study poster competition judge, Duke University Electrical and Computer Engineering Dept.	2018

SELECTED ADDITIONAL EXPERIENCE

WALT DISNEY RESEARCH, *Research Assistant* (Ph.D. Intern), Zurich, Switzerland Spring 2011
Examined feasibility of providing proprietary wireless location services in Walt Disney parks. Patented the proposed base station identity management techniques.

SIRIUS SATELLITE RADIO, *Back-end Software Developer*, New York, NY Summer 2007
Enhanced functionality of a business-critical subscriber management system. Participated in all stages of software development lifecycle.

NORTEL NETWORKS, *Web Software Developer* (B.Sc. Intern), Ottawa, ON Fall 2003
Developed Intranet web applications using Perl, MySQL, ODBC/JDBC, Java, HTML, and shell scripting.

CANADIAN PATENT OFFICE, *Assistant Patent Examiner* (B.Sc. Intern), Hull, QC Spring 2003
Examined patent applications in the areas of software, electrical, and computer engineering.

SELECTED ADDITIONAL TRAINING

MARIA GORLATOVA: CURRICULUM VITAE

Project Management (New York University 2015), Proposal Writing (Princeton University 2016), Product Management (New York General Assembly 2014), Micro-MBA (IBM 2014).

Certifications: Project Management Professional PMI PMP, 2016 – 2019.

SELECTED ADDITIONAL PROFESSIONAL ACTIVITIES

Organizer: Academic Panel, OpenFog Consortium Member Meeting, 2017, N² Women Meeting, IEEE SECON 2010, EE/CS Networking Seminar Series, Columbia University, 2010, N² Women Meeting, ACM MobiCom 2009, EnHANTs Summer Students Workshop, Columbia University, 2009.

Session chair:

IoT, Cloud, and Weather Session, ABI Grace Hopper Celebration of Women in Computing 2016

Scholarship committee member, ABI Grace Hopper Celebration of Women in Computing 2015, 2016

External reviewer, conferences: IEEE INFOCOM 2009 – 2014, ACM SIGMETRICS 2011 – 2013, IEEE DCOSS 2012, IEEE GLOBECOM 2011, IEEE/IFIP WONS 2011, IEEE WiOpt 2009, IEEE MILCOM 2008.

Judge, ACM Student Poster Competition, ABI Grace Hopper Celebration of Women in Computing 2016

Panelist, technology:

Panel moderator: Fog and Edge from the Practitioners' Point of View, IEEE Fog World Congress 2017

Academic panel, OpenFog Consortium Seattle Member Meeting 2017

IEEE Women in Engineering International Leadership Conference (IEEE WIE ILC) 2017

Expert panel, OpenFog Consortium Fog Forum Denver 2017

Expert panel, OpenFog Consortium Fog Forum Atlanta 2017

Expert panel, Wireless Energy Transfer and Scavenging Techniques Workshop 2012

Panelist, student and career guidance:

Undergraduate Women in Computer Science Summit, D. E. Shaw Research 2015

Industry careers panel, Columbia University Office of Postdoctoral Affairs 2015

Career speaker series, Columbia University Graduate Society of Women Engineers 2015

Panel for women in engineering, Columbia University School of Engineering 2012, 2013

Graduate student panel, Department of Electrical Engineering, Columbia University 2011

Invited participant:

Facebook Connectivity Lab Research Workshop 2018

Microsoft Research Faculty Summit: Systems 2018

Massachusetts Institute of Technology (MIT) **Rising Stars in EECS** Career Workshop 2013

Google Inc. Scholars Retreat 2012

ACM MobiSys'11 Ph.D. Forum. **Best Speaker Award** 2011

Google Inc. Graduate Researchers in Academia of Diverse Backgrounds CS Forum 2010

Illinois Wireless Summer School, University of Illinois at Urbana-Champaign (UIUC) 2009

SELECTED MEDIA COVERAGE

[NetworkWorld18] Augmented Reality, Fog, and Vision: Duke Professor Outlines the Importance of Smart Architectures, *Network World*, Oct. 2018

www.networkworld.com/article/3309446/cloud-computing/augmented-reality-fog-and-vision-duke-professor-outlines-importance-of-smart-architectures.html

[NewYorker17] If Donald Trump Were Actually a Battery, *New Yorker Magazine*, May 2017

www.newyorker.com/tech/elements/if-donald-trump-were-actually-a-battery

MARIA GORLATOVA: CURRICULUM VITAE

[ECD17] OpenFog Reference Architecture: Baseline for Interoperability in the Industrial IoT Cloud-to-Things Continuum, *Embedded Computing Design*, March 2017
www.embedded-computing.com/embedded-computing-design/the-openfog-reference-architecture-a-baseline-for-interoperability-in-the-iiot-cloud-to-things-continuum

[MITTech14] The Internet of You, *MIT Technology Review Business Report*, May 2014
www.technologyreview.com/news/527386/the-internet-of-you/

[MITTech13] Human Motions Will Power the Internet of Things, Say Energy Harvesting Engineers, *MIT Technology Review Physics ArXiv Blog*, July 2013
www.technologyreview.com/view/516816/human-motion-will-power-the-internet-of-things-say-energy-harvesting-engineers/