

RESEARCH PROFILE

I am an expert in pervasive systems and augmented reality, specializing in the scientific and computer systems foundations of next-generation extended reality (XR) and immersive AI. My core research goal is to enable safe and robust augmented reality (AR) and human-centered spatial AI in open-world settings. My research integrates edge AI, sensing, networking, empirical measurement, and real-time evaluation to enable robust environmental and user-state awareness in AR/XR, safe AR-mediated human-robot collaboration, and human-centered XR systems for healthcare.

At Duke, I lead the Duke I3T Lab, which includes nine Ph.D. students, one postdoctoral scholar, and more than ten additional research affiliates. I have secured over \$7 million in external research funding from NSF, DARPA, DoD, and industry sponsors, including over \$2.1 million since earning tenure in July 2025. My work has been recognized with the DARPA Young Faculty Award and DARPA Director's Fellowship, NSF CAREER Award, Meta Research Award, IBM Faculty Awards, Cisco Research Award, and multiple ACM and IEEE best paper and research artifact awards.

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 Computer Society 2025 IEEE TVCG VR & AR Best Paper Award 2026

Bass Chair – *University-wide recognition of excellence in research and undergraduate teaching* 2026 – 2031

ACM HotMobile Best Demo Award 2026

IEEE ISMAR Best Paper Award 2025

IEEE Universal Augmented Interaction Workshop Best Paper Award 2025

DARPA Director's Fellowship Award 2025

ACM/IEEE IPSN Best Research Artifact Runner-up Award 2024

DARPA Young Faculty Award 2023

Cisco Research Award 2023

ACM ImmerCom Best Paper Award 2023

ACM UbiComp Best Poster Award 2022

NSF CAREER Award 2021

Meta Research Award 2021

IBM Faculty Award 2020, 2023

Duke University Pratt School of Engineering Nortel Networks Professorship 2020 – 2025

ACM/IEEE IPSN Best Research Artifact Award 2020

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National Academy of Engineering's US Frontiers of Engineering (US FOE) Symposium Invitation	2020
N ² Women Rising Star in Networking and Communications	2019
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 Demo 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

Sternberg Family Associate Professor, Pratt School of Engineering, July 2026 – present

Associate Director, Karsh STEM+ Scholars Program, 2025 – present

Associate Director for XR, Duke Center for Computational and Digital Health Innovation, 2025 – present

James N. & Elizabeth H. Barton Associate Professor, Pratt School of Engineering, 2025 – 2026

Nortel Networks Assistant Professor, Pratt School of Engineering, 2020 – 2025

Assistant Professor, Electrical and Computer Engineering and Computer Science, 2018 – 2020

Leading the Duke I3T Lab, focused on edge AI and computer systems foundations for next-generation augmented reality and immersive AI systems and applications. Secured over \$7 million in research grants, including \$2.1 million since earning tenure in July 2025. Lead PI on a \$1.2 million three-university (Duke, CMU, University of Michigan) NSF CISE award centered on collaborative AR context awareness. Serve as Duke PI on an NSF TIP project on networked XR for rehabilitation, leading a \$750K effort involving Duke ECE, Duke OIT, and the Duke School of Nursing. Research recognized with the DARPA Young Faculty Award and DARPA Director's Fellowship, NSF CAREER Award, industry research awards from Meta, Cisco, and IBM, and multiple ACM and IEEE best-paper and research-artifact awards.

PRINCETON UNIVERSITY, Princeton, NJ 2016 – 2018

Associate Director, Princeton EDGE Lab, 2017 – 2018

Associate Research Scholar, Electrical Engineering Department

Senior member of the Princeton EDGE lab led by Prof. Mung Chiang. Defined architectures and algorithms for edge computing. 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 was adopted as an IEEE standard.

D. E. SHAW RESEARCH, New York, NY 2014 – 2016

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

Led a \$20m+ 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).

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.

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.

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.

DEFENSE R&D CANADA (Scientific agency of the Dept. 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).

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 TEACHING EXPERIENCE

ECE 654 / COMPSI 564, *Edge Computing*

Spring 2020 – 2025, Fall 2018

- Graduate seminar designed and developed. First 4 installments taught as ECE/CS 590: Special Topics course.
- Spring 2026: enrollment: 16. Student ratings: course 4.5/5, instructor 4.5/5
- Spring 2025: enrollment: 15. Student ratings: course 4.2/5, instructor 4.33/5
- Spring 2024: enrollment: 13. Student ratings: course 4.6/5, instructor 5.0/5
- Spring 2023: enrollment: 14. Student ratings: course 4.4/5, instructor 4.2/5
- Spring 2022: enrollment: 18. Student ratings: course 4.67/5, instructor 4.67/5
- Spring 2021: enrollment: 16. Student ratings: course 4.0/5, instructor 5.0/5
- Spring 2020: enrollment: 21. Student ratings: course 4.5/5, instructor 4.5/5
- Fall 2018: enrollment: 11. Student ratings: course 4.4/5, instructor 4.7/5

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.

ECE 356 / COMPSCI 356, *Computer Network Architectures*

Fall 2025, 2024, 2021, 2019

- Undergraduate computer network fundamentals course.
- Fall 2025: enrollment: 13. Student ratings: course 4.08/5, instructor 4.0/5
- Fall 2024: enrollment: 50. Student ratings: course 3.3/5, instructor 3.5/5
- Fall 2021: enrollment: 43. Student ratings: course 3.4/5, instructor 3.8/5
- Fall 2019: enrollment: 39. Student ratings: course 4.1/5, instructor 4.2/5

This course introduces students to the fundamentals of computer networks. The layered architecture of the network protocol stack is the focus of discussion. A variety of case studies will be drawn from the Internet, combined with practical programming exercises. At the end of the semester, students will understand core networking concepts, including the Internet architecture, HTTP, DNS, Sockets, TCP/IP, routing protocols, and multimedia and wireless and mobile networking. The students will be able to answer questions such as how to achieve reliable communications over unreliable channels, how to find a good path through a network, how to share network resources among competing entities, how to find an object in the network, and how to build network applications.

SELECTED PROFESSIONAL ACTIVITIES

Steering committee member:

ACM/IEEE SenSys	2024 – 2028
ACM/IEEE IPSN	2023 – 2024

Technical Program Committee (TPC) chair:

ACM Symposium on Edge Computing (SEC)	2027
ACM SenSys	2025
ACM/IEEE IPSN	2023
IEEE Sarnoff Symposium	2019

Track chair:

Social Networks, Extended Reality, and Metaverse track, IEEE ICCCN	2025
Edge Computing track, IEEE ICDCS	2021
Internet of Things track, ABI Grace Hopper Celebration of Women in Computing	2016 – 2018

General chair:

ACM HotMobile	2027
ACM Workshop on Enhancing Security, Privacy, and Trust in Extended Reality (XR) Systems	2025, 2026
NSF Workshop on Networking and Systems Challenges in Immersive Computing	2025
ACM Workshop on Emerging Multimedia Systems, co-located with ACM SIGCOMM	2023
ACM MobiSys PhD Forum	2012

Best paper award committee member:

ACM MobiCom	2024
ACM MobiHoc	2023
ACM Symposium on Edge Computing (SEC)	2023

Workshop chair:	
ACM MobiCom	2024
Demo and poster chair:	
ACM SenSys	2022
Associate editor , ACM Transactions on Sensor Networks (impact factor: 4.1)	2024 – present
Area chair , Elsevier Computer Networks (impact factor: 4.47)	2019 – 2022
Guest editor, special issue:	
ACM Trans. on Sensor Networks: Computing, Sensing, and Networking for Immersive Systems	2024
IEEE Network: Networking Challenges and Opportunities for Multi-user XR and the Metaverse	2023
IEEE Internet of Things Journal: Emerging Trends and Challenges in Fog Computing for the IoT	2019
IEEE Access: Sustainable Infrastructures, Protocols, and Research Challenges for Fog Computing	2019
Co-chair , Communications Working Group, OpenFog Consortium (elected position)	2016 – 2017
Fellowship awards co-chair, board member , N ² Women	2016 – 2017
Session chair:	
ACM HotMobile	2026
IEEE VRST	2025
IEEE ISMAR	2025
ACM MobiCom	2023
ACM/IEEE IPSN	2022
CPS-IoT Week IEEE Workshop on Fog Computing and the IoT	2019
ABI Grace Hopper Celebration of Women in Computing	2016
Scholarship committee member , ABI Grace Hopper Celebration of Women in Computing	2015, 2016
External search committee member , University of Copenhagen, Department of Computer Science	2024
Confidential external evaluator for tenure and promotion:	
• R1 US institution	2026
TPC member, recent:	
IEEE VR	2027
AAAI	2027
ACM MobiCom	2023 – 2027
2024 ACM MobiCom Distinguished TPC Member (4 recognized out of 114)	
ACM SenSys	2020 – 2024, 2026
ACM MobiSys – light TPC	2026
IEEE ISMAR	2025, 2026
ACM VRST	2025, 2026
ACM ImmerCom, co-located with ACM MobiCom	2024 – 2026
ACM SIGCOMM	2023 – 2025
ACM HotMobile	2023 – 2025

TPC member, previous since joining Duke:

IEEE TRUST-XR, co-located with IEEE ISMAR 2025, IEEE SafeThings, co-located with IEEE S&P or ACM/IEEE CPS-IoT week 2021 – 2024, IEEE Workshop on Security and Privacy in Augmented, Virtual, and Extended Realities 2024, IEEE INFOCOM 2021, 2024, ACM Symposium on Edge Computing (SEC) 2023, 2024, ACM/IEEE IPSN 2021, 2022, 2024, ACM AgeTech, co-located with ACM MobiCom 2024, ACM EdgeSys 2024, ACM MobiHoc 2023, ABI Grace Hopper, Extended Reality track 2023, IEEE MetaCom, Metaverse Architectures and Applications track 2023, IEEE ICDCS 2020, 2022, ACM SmartWear, co-located with ACM MobiCom 2022, ACM EMDL, co-located with ACM MobiSys 2022, IEEE MetaSys, co-located with IEEE ISMAR 2022, IEEE ICNP 2019 – 2021, ACM ENSSys (co-located with ACM SenSys) 2014, 2019 – 2021, IEEE/ACM Workshop on Cyber-Physical-Human System Design, co-located with CPS-IoT week 2021, ACM LP-IoT, co-located with ACM MobiCom 2021, IEEE FogML'21 (co-located with IEEE INFOCOM) 2021, ACM SOSR 2020, IEEE HDR-Nets (co-located with IEEE ICNP) 2020, IEEE SECON 2016, 2018, 2019, ACM/IEEE ICCPS 2019, IEEE International Conference on Fog Computing 2019, IEEE GLOBECOM SAC - Internet of Things 2019, ACM CoNext Student Workshop 2019, IFIP Performance 2018, ACM/SIGBED EWSN 2018, IEEE LANMAN 2018, IEEE International Conference on Fog and Edge Computing 2018.

National funding agency service:

Leadership:

US National Science Foundation (NSF): CSR PI meeting breakout session co-leader 2025

Proposal review service:

US National Science Foundation (NSF): panelist, computer systems (x2) 2026
 US National Science Foundation (NSF): panelist, communications and networking 2015, 2017, 2021, 2024
 US National Science Foundation (NSF): panelist, human-computer interactions 2021, 2022, 2024
 US National Science Foundation (NSF): panelist, future of work at the human-technology frontier 2023
 US National Science Foundation (NSF): panelist, algorithms and systems 2016, 2017
 Canada NSERC Discovery Grant: reviewer 2021, 2022, 2024
 Dutch Research Council NWA-ORC: reviewer 2021
 UK National Institute for Health Research (NIHR): reviewer 2019
 Israel Science Foundation (ISF): reviewer 2016, 2017, 2019

Duke I3T Lab outreach events:

National Academy of Engineering (NAE) regional meeting 2026
 Duke I3T Open Lab Day, for university and local community members 2025
 Duke I3T lab tour, Oxford High School, E4USA program 2025

PhD Forum panelist:

ACM/IEEE IPSN 2021

Judge, industry recognitions:

Consumer Electronics Show (CES) Innovation Awards 2016 – 2019
 Consumer Electronics Show (CES) Asia Innovation Awards 2017

Advisory board member:

EU H2020 ENLIGHT'EM European Training Network in Low-Energy Visible Light IoT Systems 2019 – 2022
 All Inspire Health (an Internet of Things startup) 2016 – 2017
 Fit A.I. (an Internet of Things startup) 2016 – 2017

Reviewer, journals: ACM Trans. Human-Computer Interactions 2025, ACM IMWUT 2024, IEEE MultiMedia 2022, ACM IMWUT 2022, IEEE Transactions on Wireless Communications 2020, 2018, 2017, 2010 – 2015, IEEE Journal on Selected Areas in Communications 2019, 2015, IEEE/ACM Transactions on Networking 2019, 2009 – 2012, 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 Sensors 2013, ACM Transactions on Sensor Networks 2012, IEEE Transactions on Parallel and Distributed Systems 2009, 2010.

External reviewer, conferences: CVPR 2026, ACM HRI 2026, IEEE VR 2026, IEEE ISMAR 2024, IEEE VR 2024, ACM VRST 2023, 2024, IEEE ISMAR 2021 – 2023, ACM CHI 2022, IEEE INFOCOM 2009 – 2014, ACM SIGMETRICS 2011 – 2013, IEEE DCSS 2012, IEEE GLOBECOM 2011, IEEE/IFIP WONS 2011, IEEE WiOpt 2009, IEEE MILCOM 2008.

Reviewer, other: Springer book proposal reviewer 2019.

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.

Mentor, ACM MobiHoc N2Women Workshop 2021

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

Panel moderator:

From Risk to Resilience: Securing the Everyday XR Experience, XR Security Workshop 2025

Thriving Together: Tackling the Core Networking and Systems Challenges and Growing the XR Community.

NSF Workshop on Networking and Systems Challenges in Immersive Computing 2025

Panelist, technology:

Deploying the Future Aviation Ecosystem, NAE Regional Meeting 2026

Practical deployment advice for edge computing, IoT Solutions World Congress Digital Summit 2021

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:

Athena NSF AI Institute Faculty Fireside Chat 2025

Future Faculty Forum, IEEE ISMAR 2024

Future Faculty Forum, IEEE VR 2024

Academic Job Search: Behind the Scenes with the Search Committee, Duke University 2023

PhD student orientation faculty panel, Duke University Pratt School of Engineering 2021

Academic Job Search: Finding the Opportunities and Applying, Duke University 2020

Academic Job Search: The Interview Process, Duke University 2019

Challenges and Solutions to Address the Gender Gap in STEM, Duke University 2019

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

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Panel for women in engineering, Columbia University School of Engineering	2012, 2013
Graduate student panel, Department of Electrical Engineering, Columbia University	2011

Invited participant:

UIUC Center for Immersive Computing Summit	2024, 2026
DISCOVER-US Vision Workshop on Distributed Computing and Swarm Intelligence	2024
Google Networking Research Summit	2023
DARPA ISAT Workshop: Wearable Supportive Personalized Self-Regulation (WSPR)	2022
National Academy of Engineering's US Frontiers of Engineering (NAE US FOE) Symposium	2021
University of Washington Industry-academia Summit on Mixed Reality Security, Privacy, and Safety	2019
XR Access Symposium on Accessibility in Augmented and Virtual Reality	2019
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

RESEARCH GRANTS

Proposal submissions recommended for funding:

[Meta-Equipment26] *Principal Investigator*, Equipment grant: “Meta Aria Gen 2 Glasses for Facilitating Human-Robot Collaboration.” Application for 5 smart glasses sets submitted Dec. 2025. Application approved September 2026, awaiting device shipment.

Total after joining Duke University: \$7mln. Total after securing tenure in July 2025: \$2.1mln.

Current research grants:

[NSF26FutureCore] *Principal Investigator*, NSF IIS-2616182, “HCC: Foundations of Automated Evaluation and Monitoring of AR Guidance in Pervasive AR and Human-Robot Collaboration (HRC) Applications.” Joint with Co-PI Miroslav Pajic (Duke University). \$500,000. 2026 – 2030.

[NSFVINES25] *Senior Personnel*, NSF TIP VINES, “VINES: Track 2: AReS: Assessing, Restoring, and Supporting Post-Disaster Connectivity and Response Through ISAC-AR Integration and AI-Enabled Digital Twins.” Proposal led by PI Yasaman Ghasempour (Princeton). SP Gorlatova's portion \$400,000. 2026 – 2029.

[NSF26AI – Competing Renewal] *Senior Investigator*, “AI Institute: Athena: AI-Driven Next-generation Networks at the Edge.” Duke University-led center (PI Yiran Chen). 2026 – 2031. SP Gorlatova's portion \$225,000 for years 1-3, with an option of additional \$150 for years 4-5.

[NSF25BRLow] *Co-Principal Investigator*, NSF ITE-2453803, “Breaking Low: End-to-End Delivery Technology for Interactive Multi-person XR Rehabilitation Activities.” Joint with PI Jiasi Chen (University of Michigan) and Co-PIs Ethan Katz-Bassett (Columbia University) and Nakjung Choi (Nokia). Duke University portion \$743,000. 2025 – 2027.
Duke team includes ECE (PI Gorlatova; SP T. Chen), OIT (SP Johnson; SP Brockelsby), and Duke School of Nursing (SP Granger).

[DARPAYFA23] *Principal Investigator*, DARPA Young Faculty Award (YFA) HR0011-24-1-0001, “Runtime Identification of Detrimental Augmented Reality (AR) Experiences through AR-specific Quality of Experience (QoE) Modeling and Monitoring,” \$750,000. 2023 – 2026. **DARPA Director's Fellowship Award.**

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- [**NSF24REU**] *Principal Investigator*, REU supplement for NSF CNS-2312760, “CSR: Medium: Adaptive Environmental Awareness for Collaborative Augmented Reality,” \$18,000, 2024 – 2027.
- [**NSF23HCC**] *Principal Investigator*, NSF IIS-2231975, “HCC: Small: Robust Object Detection for Mobile Augmented Reality in the Wild,” \$600,000. 2023 – 2026.
- [**NSF23CSR**] *Principal Investigator*, NSF CNS-2312760, “CSR: Medium: Adaptive Environmental Awareness for Collaborative Augmented Reality,” \$1,200,000. 2023 – 2027. Joint with Co-PIs Carlee Joe-Wong (Carnegie Mellon University) and Jiasi Chen (University of Michigan).
- [**NSF23ExpandAI**] *Co-Principal Investigator*, NSF IIS-2332744, “PARTNER: Neuro-Inspired AI for the Edge at UTSA (NAIAD)”. PI Dhireesha Kudithipudi (UTSA). Gorlatova’s portion \$240,000. 2023 – 2027.
- [**Army23COE**] *Co-Principal Investigator*, “DoD Center of Excellence in Advanced Computing and Software (CiARE),” DoD Center of Excellence led by PI Anu G Bourgeois (Georgia State University). PI Gorlatova’s portion \$600,000. 2023 – 2028.
- [**NSF23REU**] *Principal Investigator*, REU supplement for NSF IIS-2046072, “CAREER: Foundations of IoT-Supported Mobile Augmented Reality.” \$8,000, 2023 – 2026.
- [**NSF21CAREER**] *Principal Investigator*, NSF IIS-2046072, “CAREER: Foundations of IoT-Supported Mobile Augmented Reality.” \$550,000. 2021 – 2026.
- [**NSF21AI**] *Senior Investigator*, NSF CNS-2112562, “AI Institute: Athena: AI-Driven Next-generation Networks at the Edge.” Duke University-led center (PI Yiran Chen). Total \$20,000,000. 2021 – 2027 Gorlatova’s portion ~ \$550,000.

Faculty awards:

- [**Cisco23**] Cisco Research Center Award, “Enabling Multi-user Markerless Augmented Reality via Reinforcement Learning on Mobile Devices and the Edge,” Joint with Co-PI Carlee Joe Wong (Carnegie Mellon University). 2023.
- [**Facebook21**] Facebook Faculty Award, “Provably Robust 3D Point Cloud Classification for Mobile Augmented Reality.” Joint with co-PI Neil Gong (Duke University). 2021.
- [**IBM20202023**] IBM Faculty Award, “Robust Collaborative Inference in Multi-Tier Device-to-Cloud Internet of Things Architectures.” 2020, 2023.

Previous since joining Duke:

- [**NASA22STTR**] *Co-Principal Investigator*, NASA STTR “Demonstration of Space-Qualified Environmental Evaluation Drones with Wireless Intelligent Networked Data Processing (SPEEDWINDs),” collaboration between Nanohmics (PI John Sarik) and Duke University (Co-PI Maria Gorlatova). PI Gorlatova’s portion \$50,000. Aug. 2022 – Aug. 2023.
- [**LordEducInnov22**] *Principal Investigator*, Thomas Lord Educational Innovation Grant Program, “User Context-Aware Augmented Reality (AR) for Medical and Human-Robot Collaboration Applications,” \$15,600, July 2022 – July 2023.
- [**NSF19CNS**] *Co-Principal Investigator*, NSF CNS-1908051, “Small: Collaborative Research: Towards Intelligent Multi-User Augmented Reality with Edge Computing.” A collaborative Carnegie Mellon University (PI Carlee Joe-Wong) and Duke University (PI Maria Gorlatova) proposal. PI Gorlatova’s portion \$250,000. 2019 – 2023.
- [**NSF19CC***] *Co-Principal Investigator*, NSF CC*-1925550, “Integration: Archipelago: Linking Researchers On-Campuses and in the Cloud through SDN-Enabled Microsegmentation,” Duke University submission

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jointly with Tracy Futhey (PI), Richard Biever (Co-PI), and William Brockelsby (Co-PI). \$1,000,000 total. PI Gorlatova's portion \$63,277. 2019 – 2022.

[NSF19REU] *Principal Investigator*, REU supplement for NSF CSR-1903136, “Small: Collaborative Research: Multi-tier Service Architecture in IoT-Edge-Cloud-Paradigms,” \$16,000, 2019 – 2021.

[NSF18CSR] *Co-Principal Investigator*, NSF CSR-1903136, “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.

[LordFoundation19] *Principal Investigator*, “Towards Pervasive Multi-User Augmented Reality: Undergraduate Research and Course Development.” \$12,260. 2019 – 2020.

[NCWIT19] *Principal Investigator*, National Center for Women, and Information Technology (NCWIT) Academic Alliance Seed Fund Award, Microsoft Research Faculty Summit Track, “Towards Engaging Women in Systems and Networking Research with Code+R&D project across ECE, CS, and OIT departments”. Co-PIs Tracy Futhey, John Board. \$10,000 total. 2019 – 2020.

[DARPA18BAE] *Senior Personnel*, Defense Advanced Research Projects Agency (DARPA) Dispersed Computing (DCOMP) Network Back-haul Layered Architecture (NEBULA) program. A \$C subcontract 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.

Prior to joining Duke:

[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.

Other:

[REUSITEDUKE] *Faculty Mentor*, NSF REU Site: Research Experience for Undergraduates for Meeting the Grand Challenges in Engineering, Duke University Pratt School of Engineering, 2017 – 2025.

PUBLICATIONS

Names of students, postdocs, and research associates I advised are underlined. Undergraduate contributors I advised are marked with a ‘*’. High school contributors I advised are marked with a ‘^’

Book Chapters

- [Springer26] T. Scargill, S. Eom, Y. Chen, **M. Gorlatova**, Ambient Intelligence for Next-generation Augmented Reality, *Springer Handbook of the Metaverse*, Springer, pg. 3-53, January 2026 (**invited book chapter**).
- [Wiley20] Y. Ruan, L. Zheng, **M. Gorlatova**, M. Chiang, C. Joe-Wong, Pricing Tradeoffs for Data Analytics in Fog-Cloud Scenarios, *Fognet and Fogonomics: Challenges and Practices of Fog Computing, Communication, Networking, Strategy, and Economics*, Wiley & Sons, March 2020 (**invited book chapter**).

Journal Publications

- [ToAppearIMWUT26] T. Du, T. Hu, H. Ye, and **M. Gorlatova**, SHARE: Towards Head-Mounted AR with User-Centric SLAM in Shared Human–Robot Workspaces. To appear in *ACM IMWUT* 2026.
- [FrontiersVR26] S. Eom, **M. Gorlatova**, C. Zhao, and R. Beams, Evaluation of Marker-Based Medical Image Registration Using Augmented Reality Head-Mounted Display. In *Frontiers in Virtual Reality*, Vol. 7, September 2026.
- [TVCG26] S. Eom, T. Hu, W. Xu, L. Zou, E. Escobar, G. Streisfeld, A. Mall, B. B. Granger, and **M. Gorlatova**. Rhythms of Recovery: Patient-Centered Virtual Reality Exergame for Physical Rehabilitation in the Intensive Care Unit. *IEEE Transactions on Visualization and Computer Graphics* 2026, with a presentation at *IEEE VR* 2026 (**20.6% acceptance rate**). **Under clinical evaluation in a registered Duke University clinical trial** (ClinicalTrials.gov NCT06797895).
- [IntelligenceMedicine26] S. Eom, T. Ma*, M. Pajic, and **M. Gorlatova**, M. Hadziahmetovic, LIO-VisionAR: Intelligence-Enabled Augmented Reality Guidance for Laser Indirect Ophthalmoscope-based Retinal Laser Therapy. *Intelligence-Based Medicine*, Vol. 13, No. 100353, March 2026.
- [InternetComputing25] L. Duan, E. Rotondo, Y. Xiu, S. Eom, R. Chen*, C. Li*, Y. Hu*, and **M. Gorlatova**, Probing the AR Scene Analysis Capabilities of Large Multimodal Models: Toward Reliable Real-Time Assessment Solutions. In *IEEE Internet Computing Special Issue on Immersive Computing*, Vol. 29, No. 6, Nov. 2025.
Accompanying dataset: <https://github.com/ARResearcher/DiverseARPlus>
- [TVCG25a] Y. Xiu and **M. Gorlatova**. Detecting Visual Information Manipulation Attacks in Augmented Reality: A Multimodal Semantic Reasoning Approach. *IEEE Transactions on Visualization and Computer Graphics*, Vol. 31, No. 11, Nov. 2025. Presented at *IEEE ISMAR* 2025 (**8% acceptance rate**).
IEEE ISMAR 2025 Best Paper Award - 7 recognized, out of 217 accepted, 763 submitted.
Accompanying dataset: <https://github.com/YM-Xiu/AR-VIM>
- [CIN2025] A. Frith, A. Mall, D. Streisfeld, K. Swaringen, E. Escobar, **M. Gorlatova**, B. B. Granger, Human Centered Design of a Virtual Reality Intervention to Promote Early Mobility in a Cardiothoracic Intensive Care Unit. *CIN: Computers, Informatics, Nursing*, Apr. 2025.
- [TVCG25b] Y. Xiu, T. Scargill, and **M. Gorlatova**. ViDDAR: Vision Language Model-based Detrimental Content Detection for Augmented Reality. *IEEE Transactions on Visualization and Computer Graphics*, Vol. 31, No. 5, May 2025. Presented at *IEEE VR* 2025.
Accompanying dataset: <https://github.com/YM-Xiu/ViDDAR-Dataset>
- [TVCG25a] S. Eom, S. Kim*, J. Jackson, D. Sykes, S. Rahimpour, **M. Gorlatova**, Augmented Reality-based Contextual Guidance through Surgical Tool Tracking in Neurosurgery, *IEEE Transactions on Visualization and Computer Graphics*, Vol. 31, No. 5, May 2025. **IEEE Computer Society IEEE TVCG VR & AR Best Paper Award**

- [TMC24] Y. Chen, S. Omoma*, H. Kwon*, H. Inaltekin, **M. Gorlatova**, Quantifying and Exploiting VR Frame Correlations: An Application of a Statistical Model for Viewport Pose, *IEEE Transactions on Mobile Computing*, Vol. 23, No. 12, Dec. 2024.
- [NeurosurgicalFocus24] S. Eom, T. Ma*, N. Vutakuri*, T. Hu, A. P. Haskell-Mendoza, D. W. Sykes, **M. Gorlatova**, J. Jackson. Mixed Reality-Guided Twist-Drill Craniostomy Improves the Accuracy of External Ventricular Drain Placement. *Neurosurgical Focus*, special issue on Mixed Reality in Neurosurgery. Vol. 56, No. 1, Jan. 2024.
- [TMC23] X. Zhang, S. Chen, Y. Zhang*, Y. Im, **M. Gorlatova**, S. Ha, C. Joe-Wong, Optimal Network Protocol Selection for Competing Flows via Online Learning, *IEEE Transactions on Mobile Computing*, Vol. 22, No. 8, Aug. 2023.
- [TNSM23] S. Wang, S. Hosseinalipour, **M. Gorlatova**, C. Brinton, M. Chiang, UAV-assisted Online Machine Learning over Multi-Tiered Networks: A Hierarchical Nested Personalized Federated Learning Approach, *IEEE Transactions on Network and Service Management*, Vol. 20, No. 2, June 2023.
- [IoTJ22b] Y. Han, Y. Chen, R. Wang, J. Wu, **M. Gorlatova**, Intelli-AR Preloading: A Learning Approach to Proactive Hologram Transmissions in Mobile AR, *IEEE Internet of Things Journal*, Vol. 9, No. 18, Sept. 2022.
- [IoTJ22a] J. Manjarres, G. Lan, **M. Gorlatova**, M. Hassan, M. Padro, Deep Learning for Detecting Human Activities from Kinetic Energy Signals, *IEEE Internet of Things Journal*, special issue on Sustainable Solutions for the IoT, Vol. 9, No. 10, May 2022.
- [TOSN22] G. Lan, Z. Liu, Y. Zhang*, T. Scargill, J. Stojkovic*, C. Joe-Wong, **M. Gorlatova**, Edge-assisted Collaborative Image Recognition for Mobile Augmented Reality, *ACM Transactions on Sensor Networks*, Vol. 18, No 1, Feb. 2022.
- [IoTJ21a] G. Lan, M. F. Imani, Z. Liu, J. Manjarres, W. Hu, A. Lan, D. R. Smith, **M. Gorlatova**, MetaSense: Boosting RF Sensing Accuracy using Dynamic Metasurface Antenna, *IEEE Internet of Things Journal*, Vol. 8, No. 18, Sept. 2021.
- [IOTJ20] C. Yu, K. Kam, Y. Xu, Z. Cui, D. Steingart, **M. Gorlatova**, P. Culligan, I. Kymissis, Plant Spike: A Low Cost, BLE Beacon with On-Board Sensors for Smart City Soil Health Monitoring, *IEEE Internet of Things Journal*, Vol. 7, No. 9, June 2020.
- [CNets20] **M. Gorlatova**, H. Inaltekin, M. Chiang, Characterizing Task Completion Latencies in Multi-point Multi-quality Fog Computing Systems, *Elsevier Computer Networks*, Vol. 181, Nov. 2020.
- [CommunMag20] G. Lan, M. F. Imani, P. Del Hougne, W. Hu, D. Smith, **M. Gorlatova**, Wireless Sensing Using Dynamic Metasurface Antennas: Challenges and Opportunities, *IEEE Communications Magazine*, Vol. 58, No. 6, June 2020.
- [IOTJ18] 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. Vigrham, 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

[ToAppearVRST26] E. Rotondo, L. Duan, Y. Xiu, S. Eom, C. Li, and **M. Gorlatova**, Harnessing Vision-Language Models for Perceptual Quality Assessment and Autonomous Content Adjustment in Augmented Reality. To appear in Proc. *ACM VRST* 2026.

GitHub: <https://github.com/AResearcherOfThings/RateAR>

[MobileHCI26] C. Fronk, H. Ye, Z. Qu, **M. Gorlatova**, ARTOO-DARTU: Studying AR-Assisted Human-Robot Collaboration with AR Obstruction Mitigation during a Warehouse Task. In Proc. *ACM MobileHCI*, Aug. 2026.

[RoMAN26] C. Fronk, H. Ye, D. Hunt, M. Pajic, **M. Gorlatova**, fARfetch: Enabling Collocated AR-HRC in Large Outdoor Environments with VLM-Driven AR Content Adaptation. In Proc. *IEEE RO-MAN*, Aug. 2026.

[SOUPS26] X. Wang, X. Yao, Y. Xiu, X. Yi, **M. Gorlatova**, H. Li, Is It Real? Exploiting Virtual-Physical Discrimination Vulnerability in Mixed Reality. In Proc. *SOUPS*, Aug. 2026 (**15.5% acceptance rate**).

[HotMobile26] H. Ye, T. Hu, **M. Gorlatova**, No Guide, No Cheat: Detecting Smart Glasses via AR Optical Signatures. In Proc. *ACM HotMobile*, Feb. 2026. Accompanying demonstration received the **ACM HotMobile'26 Best Demo Award**.

[AAACLFindings25] S. Mim, J. Morris, M. Dhakal, Y. Xiu, **M. Gorlatova**, Y. Ding, Can a Unimodal Language Agent Provide Preferences to Tune a Multimodal Vision-Language Model? In *Findings of the Association for Computational Linguistics: IJCNLP-AAACL*, Dec. 2025.

[VRST25] S. Baek, Z. Qu, and **M. Gorlatova**, AR-TMT: Investigating the Impact of Distraction Types on Attention and Behavior in AR-based Trail Making Test. In Proc. *ACM VRST*, Nov. 2025.

GitHub: <https://github.com/Duke-I3T-Lab/AR-TMT>

[ISMAR25b] Z. Qu, T. Hu, C. Fronk, and **M. Gorlatova**. Will You Be Aware? Eye Tracking-Based Modeling of Situational Awareness in Augmented Reality. In Proc. *IEEE ISMAR*, Oct. 2025 (**21% acceptance rate**).

GitHub: https://github.com/Duke-I3T-Lab/AR_CPR_SA

[ISMAR25a] T. Hu, A. Du, Z. Qu, and **M. Gorlatova**. XR Reality Check: What Commercial Devices Really Deliver for Spatial Tracking. In Proc. *IEEE ISMAR*, Oct. 2025 (**21% acceptance rate**).

GitHub: https://github.com/Duke-I3T-Lab/XR_Tracking_Evaluation

[NeurIPS24] L. Duan, J. Sun, J. Jia, Y. Chen, and **M. Gorlatova**. Reimagining Mutual Information for Enhanced Defense against Data Leakage in Collaborative Inference. In *NeurIPS*, Dec. 2024.

[SenSys24] T. Hu, T. Scargill, Y. Chen, F. Yang, G. Lan, and **M. Gorlatova**. SEESys: Online Pose Error Estimation System for Visual SLAM. In Proc. *ACM SenSys*, Nov. 2024 (**19.2% acceptance rate**).

GitHub: <https://github.com/Duke-I3T-Lab/SEESys>

[ISMAR24] Z. Qu, R. Byrne, and **M. Gorlatova**. "Looking" into Attention Patterns in Extended Reality: An Eye Tracking-based Study. Proc. *IEEE ISMAR*, Oct. 2024.

GitHub: https://github.com/Duke-I3T-Lab/XR_Attention_Sudoku

- [IMWUT24] T. Scargill, R. Janamsetty*, C. Fronk, S. Eom, and **M. Gorlatova**, Environment Texture Optimization for Mobile Augmented Reality. In Proc. *ACM IMWUT*, Vol. 8, No. 3, Sept. 2024.
- [IPSN24] L. Duan, Y. Chen, Z. Qu, M. McGrath, E. Ehmke, and **M. Gorlatova**, BiGuide: A Bi-Level Data Acquisition Guidance for Object Detection on Mobile Devices, in Proc. *ACM/IEEE IPSN*, Hong Kong, China, May 2024. **(21.5% acceptance rate)**. 2023 NSF AI for Edge Computing Leveraging Next Generation Networks (ATHENA) Institute Annual Review **Best Poster Runner-up Award**. **ACM/IEEE IPSN 2024 Best Research Artifact Runner-up Award**.
- [ICRA24] L. Duan, Y. Chen, T. Scargill, and **M. Gorlatova**, 3D Object Detection with VI-SLAM Point Clouds: The Impact of Object and Environment Characteristics on Model Performance, in Proc. *IEEE ICRA*, Yokohama, Japan, May 2024.
- [ISMAR23] T. Scargill, Y. Chen, T. Hu, and **M. Gorlatova**, SiTAR: Situated Trajectory Analysis for In-the-Wild Pose Error Estimation, in Proc. *IEEE ISMAR*, Oct. 2023.
GitHub: <https://github.com/timscargill/SiTAR>
- [INFOCOM23] Y. Chen, H. Inaltekin, **M. Gorlatova**, AdaptSLAM: Edge-assisted Adaptive SLAM with Resource Constraints via Uncertainty Minimization, in Proc. *IEEE INFOCOM*, May 2023 **(19.2% acceptance rate)**.
GitHub: <https://github.com/i3tyc/AdaptSLAM>
- [SenSys22] J. Sun, A. Li, L. Duan, S. Alam, X. Deng, X. Guo, H. Wang, **M. Gorlatova**, M. Zhang, H. Li, Y. Chen, FedSEA: A Semi-Asynchronous Federated Learning Framework for Extremely Heterogeneous Devices, in Proc. *ACM SenSys*, Boston, MA, Nov. 2022.
- [ISMAR22a] S. Eom, D. Sykes, S. Rahimpour, **M. Gorlatova**, NeuroLens: Augmented Reality-based Contextual Guidance through Surgical Tool Tracking in Neurosurgery, in Proc. *IEEE ISMAR*, Singapore, Oct. 2022 **(21% acceptance rate)**. **Demonstrated to members of US legislature** as part of the September 2023 National AI Research Institutes Congressional Showcase. Demonstration **highlighted in NSF Director's weekly newsletter and NSF CISE monthly newsletter**.
- [ISMAR22b] T. Scargill, Y. Chen, N. Marzen, **M. Gorlatova**, Integrated Design of Augmented Reality Spaces Using Virtual Environments, in Proc. *IEEE ISMAR*, Singapore, Oct. 2022 **(21% acceptance rate)**.
GitHub: <https://github.com/timscargill/Virtual-Inertial-SLAM>
- [IMWUT22] Y. Zhang*, T. Scargill, A. Vaishnav, G. PremSankar, M. Di Francesco, **M. Gorlatova**, InDepth: Real-time Depth Inpainting for Mobile Augmented Reality, in Proc. *ACM IMWUT*, Cambridge, UK, Sept. 2022.
- [IPSN22] G. Lan, T. Scargill, **M. Gorlatova**, EyeSyn: Psychology-inspired Eye Movement Synthesis for Gaze-based Activity Recognition, in Proc. *ACM/IEEE IPSN*, virtual, May 2022. **Selected media coverage: vice.com, hackster.io. Highlighted in the university-wide Duke Daily and in the NSF-wide Discoveries newsletters.**
- [INFOCOM22] Y. Chen, H. Kwon*, H. Inaltekin, **M. Gorlatova**, VR Viewport Pose Model for Quantifying and Exploiting Frame Correlations, in Proc. *IEEE INFOCOM*, virtual, May 2022 **(19.9% acceptance rate)**.
- [HotChips21] P.J. Adams, B. Batson, A. Bell, J. Bhatt, J.A. Butts, T. Correia, B. Edwards, P. Feldmann, CH Fenton, A. Forte, J. Gagliardo, G. Gill, **M. Gorlatova**, B. Greskamp, JP Grossman, J. Hunt, B. Jackson, M. Kirk, J. Kuskin, RJ Mader, R. McGowen, A. McLaughlin, M. Moraes, M. Nasr, L. Nociolo, L. O'Donnell, A. Parker, J. Peticolas, T. Quan, TC Schwink, K.-S. Shim, N. Siddique, J. Spengler, M. Theobald, B. Towles, W. Vick, SC Wang, M. Wazlowski, M. Weingarten, JM Williams, D.E. Shaw, The AnTON 3 ASIC: A Fire-breathing Monster for Molecular Dynamics Simulations, in Proc. *IEEE HotChips*, virtual, Aug. 2021.

- [CoNext20] X. Ran, C. Slocum, Y.-Z. Tsai, K. Apicharttrisor, **M. Gorlatova**, J. Chen, Multi-User Augmented Reality with Communication Efficient and Spatially Consistent Virtual Objects, in Proc. *ACM CoNEXT*, virtual, Dec. 2020.
- [SenSys20] G. Lan, B. Heit*, T. Scargill, **M. Gorlatova**, GazeGraph: Graph-based Few-Shot Cognitive Context Sensing from Human Visual Behavior, in Proc. *ACM SenSys*, virtual, Nov. 2020 (**20.6% acceptance rate**).
- [IPSN20] Z. Liu, G. Lan, J. Stojkovic*, Y. Zhang*, C. Joe-Wong, **M. Gorlatova**, CollabAR: Edge-assisted Collaborative Image Recognition for Mobile Augmented Reality, in Proc. *ACM/IEEE IPSN*, virtual, Apr. 2020 (**21.7% acceptance rate**). **ACM/IEEE IPSN Best Research Artifact Award**.
- [ICCAD19] M. Ibrahim, **M. Gorlatova**, K. Chakrabarty, The Internet of Microfluidic Things: Perspectives on System Architecture and Design Challenges, in Proc. *IEEE/ACM ICCAD*, Westminster, CO, Nov. 2019.
- [ICNP19] X. Zhang, S. Chen, Y. Im, **M. Gorlatova**, S. Ha, C. Joe-Wong, Towards Automated Network Management: Learning the Optimal Protocol Selection for Network Flows, in Proc. *IEEE ICNP*, Chicago, IL, Oct. 2019 (short paper; **19.3% acceptance rate**).
- [INFOCOM19] P. Naghizadeh, **M. Gorlatova**, A. Lan, M. Chiang, Hurts to be Too Early: Benefits and Drawbacks of Communication in Multi-Agent Learning, in Proc. *IEEE INFOCOM*, Paris, France, May 2019 (**19.7% acceptance rate**).
- [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. *ACM SIGMETRICS*, Austin, TX, July 2014 (**17% acceptance rate**). **Selected media coverage: MIT Technology Review 2014, The New Yorker Magazine 2017**.
- [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. *IEEE GlobalSIP* Symposium on Energy Harvesting and Green Wireless Communications, Austin, TX, Dec. 2013 (**invited paper**).
- [ITiCSE13] **M. Gorlatova**, J. Sarik, P. Kinget, I. Kymissis, G. Zussman, Project-based Learning within a Large-Scale Interdisciplinary Research Effort, in Proc. ACM Conference on Innovation and Technology in Computer Science Education (*ACM ITiCSE*), Canterbury, UK, July 2013.
- [INFOCOM13] **M. Gorlatova**, R. Margolies, J. Sarik, G. Stanje, J. Zhu, B. Vignaham, M. Szczodrak, L. Carloni, P. Kinget, I. Kymissis, G. Zussman, Prototyping Energy Harvesting Active Networked Tags (EnHANTs), in Proc. *IEEE INFOCOM*, Turin, Italy, Apr. 2013.
- [WiOpt11] **M. Gorlatova**, A. Bernstein, G. Zussman, Performance Evaluation of Resource Allocation Policies for Energy Harvesting Devices, in Proc. *IEEE WiOpt*, Princeton, NJ, May 2011.
- [Infocom11] **M. Gorlatova**, A. Wallwater, G. Zussman, Networking Rechargeable Low-Power Devices: Measurements and Algorithms, in Proc. *IEEE INFOCOM*, Shanghai, China, Apr. 2011 (**~16% acceptance rate**).
- [Milcom11] **M. Gorlatova**, R. Aiello, S. Mangold, Managing Base Station Location Privacy, in Proc. *IEEE MILCOM*, 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. *ACM MobiCom*, 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. Army Science Conference (*ASC*), 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. *IEEE MILCOM*, 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. *ICST SecureComm*, 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. *IEEE MILCOM*, Washington, DC, Oct. 2006.

Workshop Proceedings

- [**ToAppearImmerCom26**] T. Du, H. Ye, Y. Li, T. Hu, T. Chen, and **M. Gorlatova**, 5G × Headsets: An Application-Level Measurement Study of 5G Latency for Networked Immersive XR. To appear in *ACM ImmerCom 2026* (co-located with *ACM MobiCom 2026*), October 2026.
- [**ToAppearMedicalXR26**] S.-C. Yang, Y. Xiu, H. Ye, Q. Chen, E. Rotondo, and **M. Gorlatova**, Real-Time Visual Obstruction Detection in Surgical Augmented Reality. To appear in *IEEE MedicalXR 2026*, co-located with *IEEE ISMAR 2026*.
- [**CVPR26FindingsB**] R. Chen, A. Andreyev, Y. Xiu, J. Chilukuri[^], S. Sen[^], M. Imani, B. Li, **M. Gorlatova**, G. Tan, T. Lan, Cognitive Attack Detection in Augmented Reality (CADAR): A Neuro-Symbolic Approach with Particle Filtering on Perception Graphs. In Proc. *CVPR Findings*, June 2026.
- [**CVPR26FindingsA**] Y. Xiu, Z. Jiang, N. Z. Gong, **M. Gorlatova**, Benchmarking Vision-Language Models under Contradictory Virtual Content Attacks in Augmented Reality. In Proc. *CVPR Findings*, June 2026.
- [**GenAI-XR26**] J. Lin^{*}, Y. Xiu, **M. Gorlatova**, User Prompting Strategies and Prompt Enhancement Methods for Open-Set Object Detection in XR Environments. In Proc. *IEEE GenAI-XR Workshop* co-located with *IEEE VR 2026*, Mar. 2026.
- [**UNAI25**] Y. Xiu, J. Chilukuri[^], S. Sen[^], **M. Gorlatova**, Say It, See It: A Systematic Evaluation on Speech-Based 3D Content Generation Methods in Augmented Reality. In Proc. *IEEE Universal Augmented Interaction Workshop (UNAI) Workshop* (co-located with *IEEE ISMAR*), October 2025. **IEEE UNAI Best Paper Award**.
- [**XRHealth25**] S. Eom, I. Xu, L. Zou, A. Frith, E. Escobar, G. Streisfeld, A. Mall, B. B. Granger, **M. Gorlatova**, Legato: Virtual Reality for Physical Rehabilitation of Patients in the Intensive Care Unit. In Proc. *IEEE XR Health Workshop* co-located with *IEEE VR 2025*, Mar. 2025.
- [**GenAI-XR25**] L. Duan, Y. Xiu, **M. Gorlatova**, Advancing the Understanding and Evaluation of AR-Generated Scenes: When Vision-Language Models Shine and Stumble. In Proc. *IEEE GenAI-XR Workshop* co-located with *IEEE VR 2025*, Mar. 2025.
GitHub: <https://github.com/ARResearch-1/DiverseAR-Dataset>
- [**ImmerCom24**] T. Hu, F. Yang, T. Scargill, **M. Gorlatova**, Apple vs. Meta: A Comparative Study on Spatial Tracking in SOTA XR Headsets. In Proc. *ACM ImmerCom* (co-located with *ACM MobiCom*), Washington, DC, Oct. 2024.
- [**TrainingXR24**] S. Eom, T. Ma^{*}, T. Hu, N. Vutakuri^{*}, J. Jackson, **M. Gorlatova**, Did I Do Well? Personalized Assessment of Trainees' Performance in Augmented Reality-assisted Neurosurgical Training, in Proc. *IEEE Workshop on 3D Content Creation for Simulated Training in eXtended Reality* (co-located with *IEEE VR*), Orlando, FL, Mar. 2024.
GitHub: <https://github.com/AREVD>

- [**ImmerCom23**] T. Scargill, M. Hadziahmetovic, **M. Gorlatova**, Invisible Textures: Comparing Machine and Human Perception of Environment Texture for Augmented Reality, in Proc. *ACM ImmerCom* (co-located with *ACM MobiCom*), Madrid, Spain, Oct. 2023. **ACM ImmerCom Best Paper Award**.
- [**XRHealth23**] S. Eom, S. Kim*, Y. Jiang, R. Chen, A. Roghanizad, M. Z. Rosenthal, J. Dunn, **M. Gorlatova**, Investigation of Thermal Perception and Emotional Response in Augmented Reality using Digital Biomarkers: A Pilot Study, in Proc. *IEEE XR for Healthcare and Wellbeing Workshop* (co-located with *IEEE VR*), Shanghai, China, Mar. 2023.
- [**DigiBiom22**] Y. Jiang, W. Wang, T. Scargill, M. Rothman, **M. Gorlatova**, J. Dunn, Digital Biomarkers Reflect Stress Reduction after Augmented Reality-guided Meditation: A Feasibility Study, in Proc. *ACM Workshop on Emerging Devices for Digital Biomarkers* (co-located with *ACM MobiSys*), Portland, OR, July 2022.
- [**CPHSS22**] T. Scargill, G. Premsankar, J. Chen, **M. Gorlatova**, Here to Stay: A Quantitative Comparison of Virtual Object Stability in Markerless Mobile AR, in Proc. *IEEE/ACM Workshop on Cyber-Physical-Human System Design and Implementation* (co-located with *CPS-IoT Week*), virtual, May 2022.
GitHub: <https://github.com/timscargill/ARStats>.
- [**XRMetaBuild22**] T. Scargill, Y. Chen, S. Eom, J. Dunn, **M. Gorlatova**, Environmental, User, and Social Context-Aware Augmented Reality for Supporting Personal Development and Change, in Proc. *IEEE Workshop for Building the Foundations of the Metaverse* (co-located with *IEEE VR*), virtual, Mar. 2022.
- [**XRHealth22**] S. Eom, S. Kim*, S. Rahimpour, **M. Gorlatova**, AR-assisted Surgical Guidance System for Ventriculostomy, in Proc. *IEEE XR for Healthcare and Wellbeing Workshop* (co-located with *IEEE VR*), virtual, Mar. 2022.
- [**SmartEdge20**] M. Glushakov*, Y. Zhang*, Y. Han, T. Scargill, G. Lan, **M. Gorlatova**, Edge-based Provisioning of Holographic Content for Contextual and Personalized Augmented Reality, in Proc. *IEEE Workshop on Smart Edge Computing and Networking* (co-located with *IEEE PerCom*), virtual, Mar. 2020. **Invited paper**.
GitHub: <https://github.com/michaelglu/SmartEdgePaper>,
<https://github.com/YunfanZhang42/SmartEdgeMagicLeap>
- [**HotNets19**] X. Ran, C. Slocum, **M. Gorlatova**, J. Chen, ShareAR: Communication-efficient Multi-User Mobile Augmented Reality, in Proc. *ACM HotNets '19*, Princeton, NJ, Nov. 2019 (**20.4% acceptance rate**).
- [**MLSystemsISCA19**] X. Zhang, S. Chen, Y. Im, **M. Gorlatova**, S. Ha, C. Joe-Wong, Optimal Learning-based Network Protocol Selection, in Proc. *ML for Systems Workshop* (co-located with *ISCA*), Phoenix, AZ, June 2019.
- [**InfocomWshop19**] V. Balasubramanian, F. Zaman, M. Aloqaily, S. Alrabaee, **M. Gorlatova**, M. Reisslein, Reinforcing the Edge: Autonomous Energy Management for Mobile Device Clouds, in Proc. *IEEE Workshop on Intelligent Cloud Computing and Networking* (co-located with *IEEE INFOCOM*), May 2019.
- [**CPSWeekWshop19**] S. Ahn, **M. Gorlatova**, P. Naghizadeh, M. Chiang, Personalized Augmented Reality via Fog-based Imitation Learning, in Proc. *IEEE Workshop on Fog Computing and the IoT* (co-located with *IEEE CPS-IoT Week*), Montreal, QC, Canada, Apr. 2019.
- [**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* (co-located with *ACM SIGCOMM*), Budapest, Hungary, Aug. 2018.
- [**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*), Cambridge, MA, Nov. 2017.

[Iofc11] **M. Gorlatova**, R. Aiello, S. Mangold, Managing Location Privacy in Cellular Networks with Femtocell Deployments, in Proc. *IEEE Workshop on Indoor and Outdoor Femtocells* (co-located with *IEEE WiOpt*), Princeton, NJ, May 2011.

[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. *IEEE Workshop on Secure Network Protocols* (co-located with *IEEE ICNP*), Boston, MA, Nov. 2005.

Selected Demonstrations

[ToAppearXRSecurity26c] C. Fronk, Z. Qu, M. Pajic, and **M. Gorlatova**, Demo: ARPocalypse: Demonstrating Situational Awareness Challenges in Search-and-Rescue AR-HRC. To appear in *ACM XR Security*, October 2026

[ToAppearXRSecurity26a] Y. Xiu and **M. Gorlatova**, When Guidance Conflicts: A Cooking Tutorial Demo of Multimodal Information Inconsistency in XR. To appear in *ACM XR Security*, October 2026.

[ToAppearXRSecurity26b] E. Rotondo and **M. Gorlatova**, Demo: Leveraging Large Multimodal Models in Real-Time as Safety Assistants in Augmented Reality. To appear in *ACM XR Security*, October 2026.

[AWE26] H. Ye, T. Du, J. Yong, J. Guo, J. Finley, J. Chen, **M. Gorlatova**, "Demo: WordPlay Party: Collaborative XR Application for Parkinson's Rehabilitation," *AWE USA*, Long Beach, CA, June 2026.

[UIUCImmerse26] H. Ye, T. Du, J. Yong, J. Guo, J. Finley, J. Chen, **M. Gorlatova**, "Demo: WordPlay Party: Towards Collaborative XR Application Latency Guarantees for Parkinson's Rehabilitation," *UIUC IMMERSE Symposium*, Urbana, IL, May 2026.

[HotMobile26b] C. Fronk, H. Ye, M. Pajic, **M. Gorlatova**. "Demo: Control the ARmada: LMM Coordination for Multi-Robot AR-HRC." In Proc. *ACM HotMobile*, 2026.

This demonstration was also presented at the January 2026 DARPA ICS Program PI Meeting and at the June 2026 IEEE VisArch Workshop co-located with IEEE ISCA 2026.

[HotMobile26a] H. Ye, T. Hu, V. Kasabrukhu*, S. Khydyr*, **M. Gorlatova**. "Demo: Catch Smart Glasses If You Scan: Robot-Controlled vs. UI-Guided." In Proc. *ACM HotMobile*, 2026. **ACM HotMobile Best Demo Award.**

[XRSecurity25c] Z. Qu, T. Hu, **M. Gorlatova**. "Demo: More Than Just Compressions: Attentional Tunneling in Augmented Reality-Guided Cardiopulmonary Resuscitation." In Proc. *ACM XR Security Workshop* (co-located with ACM MobiHoc), October 2025.

[XRSecurity25b] S. Baek, Z. Qu, **M. Gorlatova**. "Demo: Evaluating Attention Vulnerabilities to Distraction with an AR Trail Making Test (AR-TMT)." In Proc. *ACM XR Security Workshop* (co-located with ACM MobiHoc), October 2025.

[XRSecurity25a] Y. Xiu, **M. Gorlatova**. "Demonstrating Visual Information Manipulation Attacks in Augmented Reality: A Hands-On Miniature City-Based Setup." In Proc. *ACM XR Security Workshop* (co-located with ACM MobiHoc), October 2025.

[VR25] Y. Xiu, **M. Gorlatova**. "Demo: Vision Language Model-Based Solution for Obstruction Attack in AR: A Meta Quest 3 Implementation." In Proc. *IEEE VR*, Mar. 2025.

This demonstration was also presented at the January 2025 DARPA ICS Program PI Meeting and at the June 2026 IEEE VisArch Workshop co-located with IEEE ISCA 2026.

[VR24] S. Eom, T. Ma*, N. Vutakuri*, A. Du*, Z. Qu, J. Jackson, **M. Gorlatova**, Demo: Did You Do Well? Real-Time Personalized Feedback on Catheter Placement in Augmented Reality-assisted Neurosurgical Training, in Proc. *IEEE VR*, Orlando, FL, Mar. 2024.

- [**MobiCom23**] T. Hu, T. Scargill, Y. Chen, G. Lan, **M. Gorlatova**, Demo: DNN-based SLAM Tracking Error Online Estimation, in Proc. *ACM MobiCom*, Madrid, Spain, Oct. 2023.
- [**INFOCOM23**] Y. Chen, H. Inaltekin, J. Sarik, **M. Gorlatova**, Demo: Demonstrating Resource-Efficient SLAM in Virtual Spacecraft Environments, in Proc. *IEEE INFOCOM*, Hoboken, NJ, May 2023.
- [**IPSN23a**] S. Eom, R. Janamsetty*, M. Hadziahmetovic, M. Pajic, **M. Gorlatova**, Demo: Edge-based Augmented Reality Guidance System for Retinal Laser Therapy via Feature Matching, in Proc. *ACM/IEEE IPSN*, San Antonio, TX, May 2023.
- [**IPSN23b**] L. Duan, Y. Chen, **M. Gorlatova**, Demo: BiGuide: A Bi-Level Data Acquisition Guidance for Object Detection on Mobile Devices, in Proc. *ACM/IEEE IPSN*, San Antonio, TX, May 2023.
- [**SenSys22**] S. Eom, M. Hadziahmetovic, M. Pajic, **M. Gorlatova**, Demo: Through an AR Lens: Augmented Reality Magnification through Feature Detection and Matching, in Proc. *ACM SenSys*, Boston, MA, Nov. 2022.
- [**INFOCOM22**] Y. Chen, H. Inaltekin, **M. Gorlatova**, Demo: Pixel Similarity-based Content Reuse in Edge-assisted Virtual Reality, in Proc. *IEEE INFOCOM*, virtual, May 2022.
- [**IPSN22**] T. Scargill, G. Lan, **M. Gorlatova**, Demo: Catch My Eye: Gaze-based Activity Recognition in an Augmented Reality Art Gallery, in Proc. *IEEE IPSN*, virtual, May 2022.
- [**HotMobile21**] T. Scargill, S. Hurli*, J. Chen, **M. Gorlatova**, Demo: Will it Move? Indoor Scene Characterization for Hologram Stability in Mobile AR, in Proc. *ACM HotMobile*, virtual, Feb. 2021.
- [**SenSys19a**] J. Stojkovic*, Z. Liu, G. Lan, C. Joe-Wong, **M. Gorlatova**, Demo: Edge-assisted Collaborative Image Recognition for Augmented Reality, in Proc. *ACM SenSys*, New York City, NY, Nov. 2019.
- [**SenSys19b**] J. DeChicchis*, S. Ahn*, **M. Gorlatova**, Demo: Adaptive Augmented Reality Visual Output Security using Reinforcement Learning Trained Policies, in Proc. *ACM SenSys*, New York City, NY, Nov. 2019.
- [**SenSys17**] T. Chang, L. Zheng, **M. Gorlatova**, C. Gitau*, C. Huang, M. Chiang, Demo: Decomposing Data Analytics in Fog Networks, in Proc. *ACM SenSys*, Delft, Netherlands, Nov. 2017.
- [**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. *IEEE INFOCOM*, Turin, Italy, Apr. 2013.
- [**IDTechEx12**] J. Sarik, L. Pena*, M. Wang, K. Kim, H. Wang, F. Duque, G. Burrow, R. Margolies, **M. Gorlatova**, B. Vigraham, 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. Vigraham, L. Carloni, P. Kinget, I. Kymissis, and G. Zussman, Demo: Organic Solar Cell-Equipped Energy Harvesting Active Networked Tag Prototypes, in Proc. *ACM SenSys*, Seattle, WA, Nov. 2011.
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. *ACM MobiSys*, 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, *ACM MobiCom*, Chicago, IL, Sept. 2010.
- [**Secon10**] **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. *IEEE SECON*, Boston, MA, June 2010.

Selected Poster Presentations

- [**ISMAR24**] Y. Xiu, T. Scargill, **M. Gorlatova**, Poster: LOBSTAR: Language Model-based Obstruction Detection for Augmented Reality. In Proc. *IEEE ISMAR*, Seattle, WA, Oct. 2024.
- [**ARVO24**] S. Eom, M. Pajic, **M. Gorlatova**, M. Hadziahmetovic. Improving Laser Targeting Accuracy with Augmented Reality in Retinal Laser Therapy, in Proc. *Investigative Ophthalmology & Visual Science*, 2024. Presented at the annual meeting of the *Association for Research in Vision and Ophthalmology (ARVO)*, Seattle, WA, May 2024.
- [**VR24**] R. Byrne, Z. Qu, C. Fronk, S. Eom, T. Scargill, **M. Gorlatova**, Poster: AR Simulations in VR: The Case for Environmental Awareness, in Proc. *IEEE VR*, Orlando, FL, Mar. 2024.
- [**ARVO23**] S. Eom, M. Pajic, **M. Gorlatova**, M. Hadziahmetovic. Augmented Reality for Retinal Laser Therapy, in Proc. *Investigative Ophthalmology & Visual Science*, 2023. Presented at the annual meeting of the *Association for Research in Vision and Ophthalmology (ARVO)*, New Orleans, LA, Apr. 2023.
- [**UbiComp22**] T. Scargill, A. Dabrowski*, A. Xu*, **M. Gorlatova**, IoT-Enabled Environment Illuminance Optimization for Augmented Reality, in Proc. *ACM UbiComp*, Cambridge, UK, Sept. 2022. **ACM UbiComp Best Poster Award**.
- [**NAEFOE21**] **M. Gorlatova**, Edge Computing-Supported Mobile Augmented Reality, National Academy of Engineering's US Frontiers of Engineering (NAE US FOE) Symposium, Feb. 2021 (**invited participant**).
- [**NSFPIMeeting19**] **M. Gorlatova**, Intelligent Augmented Reality with Edge Computing, NSF CSR/NeTS 2019 Joint PI Meeting, Arlington, VA, Nov. 2019.
- [**HouseOfRepresentatives19**] **M. Gorlatova**, M. Glushakov*, M. Wilkinson*, J. DeChicchis*, P. Naghizadeh, M. Chiang, Intelligent Augmented Reality with Edge Computing, 2nd Coalition for National Security Research's (CNSR) Science, Technology, and Innovation Exchange (STIx) on the Hill Briefing, Washington, DC, May. 2019.
- [**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**).
- [**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**.
- [**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. IEEE Photovoltaic Specialist Conference (*IEEE PVSC*), 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. *IEEE INFOCOM*, Shanghai, China, Apr. 2011.

Selected Community Datasets

- [**GitHub25d**] L. Duan, E. Rotondo, Y. Xiu, S. Eom, R. Chen, C. Li, Y. Hu, and **M. Gorlatova**, DiverseAR+ Dataset. Available at <https://github.com/ARResearcher/DiverseARPlus>. Accompanies *IEEE Internet Computing 2025* paper titled Probing the AR Scene Analysis Capabilities of Large Multimodal Models: Toward Reliable Real-Time Assessment Solutions.
- [**GitHub25c**] Y. Xiu, **M. Gorlatova**, AR-VIM Dataset. Available at <https://github.com/YM-Xiu/AR-VIM>. Accompanies *IEEE TVCG 2025* paper titled “Detecting Visual Information Manipulation Attacks in Augmented Reality: A Multimodal Semantic Reasoning Approach.”
- [**GitHub25b**] L. Duan, Y. Xiu, and **M. Gorlatova**. DiverseAR Dataset. Available at <https://github.com/ARResearch-1/DiverseAR-Dataset>. Accompanies *IEEE GenAI Workshop 2025* paper.
- [**GitHub25a**] Y. Xiu, T. Scargill, **M. Gorlatova**, ViDDAR Dataset. Available at <https://github.com/YM-Xiu/ViDDAR-Dataset>. Accompanies *IEEE TVCG 2025* paper titled “ViDDAR: Vision Language Model-based Task-Detrimental Content Detection for Augmented Reality.”
- [**GitHub24a**] L. Duan, Y. Chen, Z. Qu, **M. Gorlatova**, BiGuide: Data Acquisition Guidance for Object Detection. GitHub, Apr. 2024. Available at <https://github.com/BiGuideCollection/BiGuide>. Accompanies ACM/IEEE IPSN 2024 paper BiGuide: A Bi-Level Data Acquisition Guidance for Object Detection on Mobile Devices. **ACM/IEEE IPSN 2024 Best Research Artifact Runner-up Award.**
- [**GitHub24b**] L. Duan, Y. Chen, T. Scargill, **M. Gorlatova**, VI-SLAM point cloud datasets VIP500 and VIP500-D. GitHub, Apr. 2024. Available at <https://github.com/timscargill/VIP-Datasets>. Accompanies IEEE ICRA 2024 paper 3D Object Detection with VI-SLAM Point Clouds: The Impact of Object and Environment Characteristics on Model Performance.
- [**GitHub23b**] T. Scargill, **M. Gorlatova**, Invisible Textures, GitHub, Oct. 2023. Available at <https://github.com/timscargill/Invisible-Textures/> Accompanies ACM ImmerCom’23 paper Invisible Textures: Comparing Machine and Human Perception of Environment Texture for Augmented Reality.
- [**GitHub22b**] G. Lan, T. Scagill, **M. Gorlatova**, EyeSyn: Eye Movement Dataset and Emulator Implementation. Available at <https://github.com/EyeSyn/EyeSynResource>. Accompanies ACM/IEEE IPSN’22 paper EyeSyn: Psychology-inspired Eye Movement Synthesis for Gaze-based Activity Recognition.
- [**GitHub22c**] Y. Zhang*, T. Scargill, A. Vaishnav, G. Premsankar, M. Di Francesco, **M. Gorlatova**, InDepth, GitHub, July 2022. Available at <https://github.com/InDepthOpensource/Code/>. Accompanies ACM IMWUT’22 paper InDepth: Real-time Depth Inpainting for Mobile Augmented Reality.
- [**GitHub21b**] Y. Chen, H. Kwon*, H. Inaltekin, **M. Gorlatova**, VR Viewport Pose Dataset, Dec. 2021. Available at <https://github.com/VRViewportPose/VRViewportPose>. Accompanies IEEE INFOCOM’22 paper VR Viewport Pose Model for Quantifying and Exploiting Frame Correlations.
- [**GitHub20a**] G. Lan, **M. Gorlatova**, DesktopActivity Eye Tracking Dataset, GitHub, Nov. 2020. Available at <https://github.com/GazeGraphResource/GazeGraph/>. Accompanies ACM SenSys’20 paper GazeGraph: Graph-based Few-Shot Cognitive Context Sensing from Human Visual Behavior.
- [**GitHub20b**] Z. Liu, J. Blanco, G. Lan, **M. Gorlatova**, Collaborative Augmented Reality: Multi-view Multi-distortion Image Dataset (MVMDD) and CollabAR Codebase, GitHub, Feb. 2020. Available at

<https://github.com/CollabAR-Source/>. Accompanies ACM/IEEE IPSN'20 paper CollabAR: Edge-assisted Collaborative Image Recognition for Mobile Augmented Reality. **ACM/IEEE IPSN 2020 Best Research Artifact Award**.

[Crawdad14] 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.

[Crawdad11] **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:

[ArXiv23b] T. Scargill, S. Eom, Y. Chen, **M. Gorlatova**, Ambient Intelligence for Next-generation Augmented Reality, arXiv:2303.12968, Mar. 2023. Preprint of the invited book chapter of the *Springer Handbook of the Metaverse*.

[ArXiv23a] Y. Chen, H. Inaltekin, **M. Gorlatova**, AdaptSLAM: Edge-Assisted Adaptive SLAM with Resource Constraints via Uncertainty Minimization, arXiv:2301.04620, Jan. 2023.

[ArXiv22] Y. Chen, H. Kwon*, H. Inaltekin, **M. Gorlatova**, VR Viewport Pose Model for Quantifying and Exploiting Frame Correlations, arXiv:2201.04060, Jan. 2022.

[ArXiv21b] T. Scargill, J. Chen, **M. Gorlatova**, Here to Stay: Measuring Hologram Stability in Markerless Smartphone Augmented Reality. arXiv: 2109.14757, Sept. 2021.

[ArXiv21a] S. Wang, S. Hosseinalipour, **M. Gorlatova**, C. Brinton, M. Chiang, UAV-assisted Online Machine Learning over Multi-Tiered Networks: A Hierarchical Nested Personalized Federated Learning Approach. arXiv:2106.15734, June 2021.

[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.

CONTRIBUTIONS TO INDUSTRY STANDARDS

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

INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER

- [**Disclosure26c**] T. Du, H. Ye, J. Finley, **M. Gorlatova**, An Augmented Reality Rehabilitation Game with Therapist Tele-presence and Large Language Model Integration. Duke University invention disclosure form submitted September 2026.
- [**Disclosure26b**] T. Du, H. Ye, T. Hu, **M. Gorlatova**, A Multi-Agent Simultaneous Localization and Mapping Algorithm for Low-Latency Augmented Reality and Robot. Duke University invention disclosure form submitted July 2026.
- [**ProvisionalPatent26**] H. Ye, **M. Gorlatova**, Methods for Detecting Smart Glasses with Waveguide-based AR Displays. Duke University invention disclosure form submitted Feb. 2026. Provisional patent filed June 2, 2026.
- [**Disclosure25b**] Y. Xiu, **M. Gorlatova**, System for Detecting Information Manipulative Virtual Content in Augmented Reality. Duke University invention disclosure form submitted Nov. 2025.
- [**Disclosure25a**] S. Eom, B. B. Granger, A. Mall, **M. Gorlatova**, Applications for Assisting Physical Rehabilitation of Patients in the Intensive Care Unit through Extended Reality Exergame. Duke University invention disclosure form submitted Nov. 2025.
February 2026 - present: Technology under clinical evaluation in a registered Duke University clinical trial (ClinicalTrials.gov NCT06797895).
- [**Disclosure24**] L. Duan, Y. Chen, Z. Qu, **M. Gorlatova**, Methods for Guiding Users on Collecting Domain-specific Training Data. Duke University invention disclosure form submitted April 2024.
- [**Disclosure23**] S. Eom, M. Pajic, M. Hadziahmetovic, **M. Gorlatova**, Methods for Assisting Clinicians during Retinal Laser Therapy through Augmented Reality. Duke University invention disclosure form submitted Apr. 2023.
- [**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.

SELECTED MENTORSHIP

Postdoctoral associates:

Hanting Ye	Spring 2025 – present
Timothy James Scargill	2024
Guohao Lan. First subsequent position: Assistant Professor at TU Delft	2018 – 2021

Ph.D. students:

Ke Zhou	Starting January 2027
Yi (Cherry) Lian	Fall 2026 - present
Eli Rotondo	Spring 2025 – present
Tianyuan (Alex) Du	Fall 2024 – present
Sihun Baek	Fall 2024 – present
Yanming Xiu	2024 – present
Christian Fronk	2023 – present
Zhehan Qu	2023 – present
Tianyi Hu	2022 – present
Lin Duan	2022 – 2025
Joined <i>NVIDIA</i> Spatial Computing & XR Group in Fall 2025	
Sarah Sangjun Eom	2021 – 2025
Joined <i>Exponent</i> Biomedical Engineering & Sciences Practice in Fall 2025	

MARIA GORLATOVA: CURRICULUM VITAE

Ying Chen. 2023 EECS Rising Star, 2023 Cyber-Physical Systems (CPS) Rising Star	2019 – 2024
Joined Penn State University as an Assistant Professor in Summer 2025	
Timothy James Scargill	2019 – 2024
Yuqi Han, Tongji University, China (PhD advisor Jun Wu)	2019 – 2020
Joined Dalian University of Technology as an Assistant Professor in January 2024	
Jose Manjarres, Universidad del Norte, Colombia (PhD advisor Mauricio Pardo Gonzalez)	2019 – 2020
Gopika Premasankar, Aalto University (PhD advisor Mario Di Francesco)	Summer 2019
Joined Aalto University as an Assistant Professor in January 2024	
Jun Li, KTH, visiting student at Princeton University (PhD advisor Jiajia Chen)	2018 – 2019
Robert Margolies, Columbia University	2011 – 2013

M.S. students:

Skylar Knight, Duke University, CS	2026 – present
Christine Yang, Duke University, CS	2026 – present
Yanhe Zhu, Duke University, ECE	2026 – present
Qi Chen, Duke University, ECE	2026 – present
Jiacheng Guo, Duke University, Game Design	2025 – present
Bodapati Vishnu Sai Vardhan, Duke University, Game Design	2025 – present
James Yong, Duke University, Game Design	2025 – 2026
Zetong Pan, Duke University, CS	2025 – 2026
Conrad Li, Duke University, ECE	2025
Iara Ravagni, Duke University, Game Design	2025
Ashley A. Frith, Georgia Tech, summer research associate at Duke University	Summer 2024
Fan Yang, Duke University, ECE	2024
Kaijian Huang, Duke University	Spring 2024
Susy Su, Duke University	Fall 2023
Siwen Dong, Duke University	Summer 2023
Xichu Xiao, Duke University	Summer 2023
Owen Gibson, Duke University	2022
Achilles Dabrowski, Duke University	2022
Lucas Liu, Duke University	2021
Zida Liu, Duke University	2019 – 2020
Tianrui (Felix) Zhang, Duke University	2020
Nisarg Dabhi, Duke University	2018 – 2019
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

Post-bacc. associates:

Ryleigh Byrne

Fall 2023 – Spring 2024

B.S. students:

Jerry Xu, Duke University	2026 – present
David Jeong, Duke University	2026 – present
Sulaiman Khydyr, Duke University	2026 – present
Val Kasabrukhu, Duke University	2026 – present
Sofa Radkova, Duke University	2026 – present
Nathaniel Corey, Duke University	2026 – present
Jamie Tan, Duke University	2026 – present
Skylar Knight, Duke University	2025 – 2026
Yuhuan Zhang, Duke University	2025 – present
Aashika Jagadeesh, Duke University	2025 – present
Elisa Torres Durney, Duke University	2026
Ahmad Choudhary, Duke University	2024 – 2025
Tristan LoGuidice, UNC, summer REU student at Duke University	Summer 2025
Junfeng Lin, Stanford University, summer REU student at Duke University	Summer 2025
Alice Hu, Duke University	2023 – 2025
Ryan Chen, Duke University	2023 – 2025
Dhruva Barua, Duke University	2025
Liam Williams, Duke University	2025
Bharat Krishnan, Duke University	2024
Kendall Powe, Tuskegee University, visiting REU student at Duke University	Summer 2024
Fareeda Akewusola, UNC Chapel Hill, visiting REU student at Duke University	Summer 2024
Tiffany Ma, Duke University	2022 – 2024
Tahsin Rahman, Duke University	2024
Alex Meng, Duke University	2023 – 2024
Ritvik Janamsetty, Duke University	2022 – 2024
Alexander Du, Duke University	2023 – 2024
Jingcheng Ni, Duke University	2024
Muchang Bahng, Duke University	2023
Lukas Dannull, Duke University	2023
Ashish Murthy, IIT Putna, visiting REU student at Duke University	Summer 2023
Shivani Karanth, NC State University, visiting REU student at Duke University	Summer 2023
Neha Vutakuri, Duke University	2022 – 2023
Seijung Kim, Duke University Howard G. Clark Award for Excellence in Undergr. Research	2021 – 2023
Darius Huang, Duke University	2022
Liuren Yin, Duke University	2022
Jeremy Suh, University of Virginia, visiting REU student at Duke University	Summer 2022
Sasamon Omoma, Duke University	2021 – 2022
Vineet Alaparthi, Duke University	2021 – 2022
Alex Xu, Duke University. Spring 2022 Best ECE Independent Study Poster Award	2021 – 2022
Jason Dong, Duke University	2022
Mary Jiang, Duke University	2021
Achilles Dabrowski, Duke University	2021
Aining Liu, Duke University	2021
Rohit Raguram, Duke University	2021
Ashley Kwon, Duke University	2020 – 2021

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Emily Eisele, Widener University, visiting REU student at Duke University	Summer 2021
Maria Christenbury, Clemson University, visiting REU student at Duke University	Summer 2021
Megan Mott, UNC Chapel Hill, visiting REU student at Duke University	Summer 2021
Yunfan Zhang, Duke University	2019 – 2021
Mohammad Khatami, Duke University	2021
Brianna Butler, Duke University	2020 – 2021
Priya Rathinavelu, Duke University	2020 – 2021
Shreya Hurli, Duke University	2020 – 2021
Michael Glushakov, Duke University	2018 – 2020
Steven Li, Duke University	2020
Achintya Kumar, Duke University	2020
Hunter Gregory, Duke University	2020
Orion Hsu, Duke University	2020
Davis Booth, Duke University	2019 – 2020
Grace Patel, Duke University	Spring 2020
Daisy Ferleger, Duke University	Spring 2020
Bailey Heit, Duke University	Spring 2020
Bogyung Kim, Duke University	Spring 2020
Cyan DeVeaux, Duke University. Stanford University Graduate and EDGE Fellowships	2019 – 2020
Jason Zhou, Duke University	2019 – 2020
Joseph DeChicchis, Duke University	2019 – 2020
Camden Vassallo, Duke University	Fall 2019
Michael Zhang, Duke University	Fall 2019
Jovan Stojkovic, University of Belgrade, visiting REU student at Duke University	Summer 2019
Courtney Johnson, NC A&T State University, visiting REU student at Duke University	Summer 2019
Charles Papandreou, Duke University	2019
Madeline Wilkinson, Duke University	Spring 2019
Kunaal Sharma, Duke University	Spring 2019
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
Kanghwan 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. Honors and Graduation with Distinction projects:

Advisor: Duke University: Skylar Knight 2026; Tiffany Ma 2024; Ritvik Janamsetty 2024; Seijung Kim 2023; Neha Vutakuri 2023; Alex Xu 2022; Ashley Kwon 2021; Joseph DeChicchis 2020.

Reader: Duke University: Cyan DeVeaux, 2020. Princeton University: Surin Ahn, 2018, Akash Levy, 2018.

High school students:

Divya Gomatam, Duke University / NC School of Science and Mathematics	Starting August 2026
Alisha Varshney, Duke University / NC School of Science and Mathematics	Starting August 2026

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Ayush Kamath, Duke University / NC School of Science and Mathematics	Starting June 2026
Tanish Pantakota, Duke University / NC School of Science and Mathematics	Starting June 2026
Joshua Chilukuri, Duke University / NC School of Science and Mathematics	2025 - 2026
Shunav Sen, Duke University / NC School of Science and Mathematics	2025 - 2026
Junfeng Lin, Duke University / NC School of Science and Mathematics	2024 - 2025
Adrian Willett, Duke University / NC School of Science and Mathematics	Summer 2025
Dhun Pandya, Duke University / NC School of Science and Mathematics	Summer 2025
Tristan LoGuidice, Duke University / NC School of Science and Mathematics	2024 – 2025
Vanessa Tang, Duke University / North Carolina School of Science and Mathematics	2023 – 2024
Jonathan Zeng, Duke University / North Carolina School of Science and Mathematics	2023 – 2024
Juan Blanco, Duke University. DukeRep Outstanding Trainee Award	Summer 2019
Kyle Ready, Princeton University	Summer 2018
Chang Sun, Columbia University	2011 – 2012
Shakhul Hai, Columbia University	Summer 2009

Programs for involving undergraduate students in research:

NSF REU Site for Meeting Grand Challenges of Engineering for the 21 st Century, Duke Univ.	2019 – 2025
NSF Center for Integrated Access Networks REU Site, Columbia University	2010, 2012

Programs for involving high school students in research:

North Carolina School of Science and Mathematics Mentorship Program	2023 – present
Duke Research in Engineering Program for high school students (DukeREP)	2019
Harlem Children Society High School Program	2009, 2011 – 2012

Other:

Mentoring: Duke University Code+ team, Augmented Reality for Duke Lemur Center project	2020
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UNIVERSITY SERVICE

Departmental and School of Engineering committees:

Space Committee, Electrical and Computer Engineering Dept., Duke University	2025 – present
Duke I/O Magazine Advisory Board, Pratt School of Engineering, Duke University	2025
Comput. Medicine Faculty Search Committee, Pratt School of Engineering, Duke University	2024 – 2025
PoP Reappointment Committee, Electrical and Computer Engineering Dept., Duke University	2023
Computer Engineering Faculty Candidates Zoom Screening, ECE Dept., Duke University	2023
Faculty Search Committee, Mechanical Eng. and Material Science Dept., Duke University	2021 – 2022
Faculty Search Committee, Electrical and Computer Engineering Dept., Duke University	2021 – 2022
Graduate Studies Committee, Electrical and Computer Engineering Dept., Duke University	2021 – 2022
Academic Dishonesty Panel, Electrical and Computer Engineering Dept., Duke University	Fall 2021
Undergr. Studies Committee, Electrical and Computer Engineering Dept., Duke University	2019 – 2021
Faculty Search Committee, Computer Science Dept., Duke University	2018 – 2019

PhD thesis committees, Electrical and Computer Engineering Department, Duke University:

Arjun Sridhar, 2025. Adviser Y. Chen. Defense Mar. 2025.
Jianyi Zhang, Spring 2025. Adviser Y. Chen. Defense Mar. 2025.
David Hunt, 2022 – present. Preliminary exam Nov. 2024. Adviser M. Pajic.
Pingcheng Jian, Apr. 2024 – present. Preliminary exam May 2024. Adviser B. Chen.
Jingwei Sun, Apr. 2022 - present. Preliminary exam May 2024. Adviser Y. Chen.
Bhavna Gopal, 2024 – 2025. Adviser Y. Chen. Preliminary exam Jan. 2024. Defense Mar. 2025.

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Hongbin Liu, 2023 – present. Adviser N. Gong.

Tunhou Zhang, 2023 – present. Adviser Y. Chen. Preliminary exam Apr. 2023.

Suya Wu, 2022 – 2023. Adviser V. Tarokh. Preliminary exam Aug. 2022. Defense March 2023.

Jinyuan Jia, 2021 – 2022. Adviser N. Gong. Preliminary exam Oct. 2021. Defense July 2022.

Ang Li, 2019 – 2022. Adviser Y. Chen. Preliminary exam Apr. 2021. Defense May 2022.

Haibei Zhu, 2021. Adviser M. Cummings. Defense June 2021.

Dan Sun, 2019 – 2021. Adviser B. Lee. Preliminary exam Apr. 2021.

Lucy Chikwetu, 2019 – 2023. Advisers J. Dunn, R. Younes. Preliminary exam Apr. 2021. Defense Nov. 2023.

Enmao Diao, 2021 – 2023. Adviser V. Tarokh. Preliminary exam Apr. 2021. Defense July 2023.

Jiachen Mao, 2018 – 2020. Adviser Y. Chen. Preliminary exam Feb. 2020. Defense July 2020.

Rana Elnaggar, 2018 – 2020. Adviser K. Chakrabarty. Preliminary exam Jan. 2019. Defense Aug. 2020.

Kent Nixon, 2018 – 2019. Adviser Y. Chen. Preliminary exam Mar. 2019. Defense: Dec. 2019.

Yuhao Li, 2019. Adviser B. Lee. Preliminary exam May 2019.

Fan Chen, 2018 – 2019. Adviser Y. Chen. Preliminary exam Nov. 2019.

PhD thesis committees, other departments at Duke University:

Computer Science Department:

Xiao Zhang, 2019 – 2023. Advisers B. Maggs, X. Yang.

Shengbao Zheng, 2018 – 2020. Adviser X. Yang.

Nisarg Raval, 2018 – 2019. Adviser A. Machanavajjhala.

Civil and Environmental Engineering Department: Aaron Appelle, 2022 – 2026. Adviser J. Lynch.

Biomechanical Engineering Department: Yihang Jiang, 2022 – present. Adviser J. Dunn.

Department of Mechanical Engineering and Material Science:

Eason Lee, 2026. Advisor B. Chen.

Kavinayan Sivakumar, 2023. Advisor M. Zavlanos.

Qualifying exams, Electrical and Computer Engineering Department, Duke University:

2024: James Kiessling, Haocheng Meng, Yinsen Jia

2023: Zhihui Gao

2022: David Hunt, Yuhao Wu, Chen-Chia Chang, Zhenzhou (Tom) Qi, Pingcheng Jian

2021: Shiyi Jiang, Tunhou Zhang, Anne French

2020: Shiyu Li

2019: Lucy Chikwetu, Dan Sun, Ang Li

2018: Fan Chen, Jiachen Mao

Qualifying exams, Computer Science Department, Duke University:

2019: Yuege Chen, Xiao Zhang.

MS thesis and project committees:

ECE Dept: Afsana Chowdhury, 2022. Adviser M. Pajic.

MEMS Dept: Jim Huang, 2025. Adviser M. Pajic

Other, Electrical and Computer Engineering Department, Duke University:

M.S. final exam poster session committee

2023, 2025

Faculty retreat panel speaker

2021

B.S. independent study poster competition judge

2018 – 2020

M.S. final exam poster session committee

2018

Other, Pratt School of Engineering:

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Duke Center for Computational and Digital Health Innovation, Associate Director, XR	2025 – present
NSF CAREER Proposals: How to Prepare, MEMS Dept. Junior Faculty Roundtable	2025
Duke Bass Connections proposals reviewer	2021
GEM middle school girls' Summer Workshop faculty speaker	2019

Other, Duke University:

DIBS Germinator Awards reviewer	2025
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SELECTED INVITED TALKS

Intelligent and Secure XR: Building Adaptive Spatial Systems That Know When They Are Wrong:

- **Keynote speaker**, *ACM/IEEE VisArch Workshop*, co-located with *IEEE/ACM ISCA*. June 2026.
- *AWE USA*, Long Beach, CA, June 2026. **Top AR+AI industry conference.**
- DARPA Intrinsic Cognitive Security (ICS) PI Meeting, July 2026.
- *US Food and Drug Administration (FDA)* Center for Devices and Radiological Health Seminar Series, May 2026.
- DARPA YFA Speaker Series, April 2026.
- Center for Human-Computer Interaction at *Virginia Tech* (CHCI@VT) Seminar Series, March 2026, online. **Headliner.**
- *University of Texas at San Antonio* AI Summer School, February 2026.
- DARPA Intrinsic Cognitive Security (ICS) PI Meeting, January 2026.
- **Keynote speaker**, The 12th International Conference on Next-generation Computing, Communication, Systems and Security (NSysS), Dec. 2025, online.
- DARPA Intrinsic Cognitive Security (ICS) PI Meeting, July 2025.
- Digital Horizons: A Summer Workshop on Digital Twins and the Metaverse, *Birla Institute of Technology and Science (BITS)*, online. June 2025.
- *AWE USA*, Long Beach, CA, June 2025. **Top AR/VR industry conference.**
Video of the talk: <https://www.youtube.com/watch?v=aIqXJA2Rfp0>
- DARPA Intrinsic Cognitive Security (ICS) PI Meeting, January 2025.
- Approaching AR Design & Development with a Security, Privacy, and Safety Mindset (*IEEE SafeAR*) Workshop, co-located with *IEEE ISMAR '24*, Seattle, WA, Oct. 2024.
- DARPA Intrinsic Cognitive Security (ICS) Program Kick-off Meeting, July 2024.

Edge and IoT-supported Intelligent Augmented Reality: Promise, Challenges, and Solutions:

- *Ohio State University* Department of Electrical and Computer Engineering Seminar Series, Feb. 2025.
- *US Food and Drug Administration (FDA)* Center for Devices and Radiological Health Seminar Series, Oct. 2024.
- Duke University-hosted U.S. Patent and Trademark Office Site Education Experience Program, May 2024.
- *University of Michigan* Department of Electrical and Computer Engineering, Communications and Signal Processing Seminar Series, Apr. 2024.
- *University of Texas at San Antonio*, UTSA Matrix AI Consortium, Mar. 2024.
- *University of Southern California* Department of Electrical and Computer Engineering, Cyber-physical Systems Seminar Series, Nov. 2023.
- *Arizona State University* Department of Electrical and Computer Engineering, Nov. 2023.
- *Carnegie Mellon University* Department of Electrical and Computer Engineering, Nov. 2023.

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- NSF Computer Systems Research (CSR) PI meeting, *Duke University*, Oct. 2023.
- GVU Brow Bag Seminar Series, *Georgia Tech*, Sept. 2023.
- *University of North Carolina at Chapel Hill* Department of Computer Science, Sept. 2023.
- Duke Computational Medicine Seminar Series, *Pratt School of Engineering, Duke University*, Sept. 2023.
Inaugural speaker.
- Distinguished Researcher Speaker Series, *Accenture Labs*, May 2023.
- *Rice University*, Department of Computer Science, Oct. 2022.
- **Keynote speaker**, ACM Workshop on Embedded and Mobile Deep Learning (*ACM EMDL*), co-located with *ACM MobiSys'22*, Portland, OR, July 2022.
- *NSF AI Athena Institute*, Durham, NC, June 2022.
- *Augmented Reality for Enterprise Alliance (AREA)*, Feb. 2022. AREA is a global non-profit organization dedicated to widespread adoption of interoperable AR-enabled enterprise systems. AREA members include Boeing, Lenovo, Magic Leap, Medtronic, NIST, Qualcomm, and Siemens.
- *AWE USA*, Santa Clara, CA, Nov. 2021. **Top AR/VR industry conference.**
- *Missouri S&T University, Department of Computer Science*, Nov. 2020.
- *ABI Grace Hopper Celebration of Women in Computing*, Oct. 2020.
- *Princeton Edge Lab 10th Year Celebration*, Princeton, NJ, May 2019.
- *BioIT World Conference*, Boston, MA, Apr. 2019.

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

- *IBM Back to School Seminar Series*, Durham, NC, June 2019.
- *Duke University Pratt School of Engineering TEER Talk*, Mar. 2019.
- *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.

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*, Feb. 2018.
- *George Washington University* Department of Electrical Engineering, Feb. 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.

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

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

- *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, June 2017.

The OpenFog Reference Architecture: Unified Framework and a Roadmap:

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

Towards Networking Commonplace Objects:

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

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

- *Imperial College London* Department of Electrical Engineering, July 2013.
- *Microsoft Research*, Seattle, WA, Mar. 2013.
- *Qualcomm*, Systems Engineering Group Seminar Series, San Diego, CA, Feb. 2013.
- *AT&T*, Technology Security Group, New York, NY, Jan. 2013.
- *Wireless Energy Transfer and Scavenging Techniques Workshop*, IEEE Microwave Symposium (*IEEE IMS'12*), Montreal, QC, Canada, June 2012.
- *IEEE Ottawa Signal Processing Society*, Ottawa, ON, Canada, Nov. 2012.
- *Walt Disney Research Zurich*, Zurich, Switzerland, Mar. 2012.
- Ph.D. Forum, ACM Conference on Mobile Systems, Applications, and Services (*ACM MobiSys'11*), Bethesda, MD, June 2011.
- *Defense R&D Canada*, Network Information Operations Group Seminar Series, Ottawa, ON, Canada, May 2011.
- *Telcordia Technologies Applied Research*, Piscataway, NJ, Dec. 2010.
- *IDTechEx Energy Harvesting and Storage USA'10 Conference*, Boston, MA, Nov. 2010.

Wormhole Attack Detection in Wireless Ad Hoc Networks:

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

Panel Presentations and Lightning Talks

[SEC25] Looking Back and Moving Forward: 10 Years of Edge Computing, Washington, DC, Dec. 2025.

[ImmerCom24] Open research problems in XR, ACM ImmerCom (co-located with ACM MobiCom), Washington, DC, Nov. 2024.

[AWEXR24] AI + XR, AWE Nite NC Triangle XR Meetup, Durham, NC, Aug. 2024.

[IMMERSE24] Edge and IoT-supported Augmented Reality, UIUC IMMERSE Seminar, Urbana, IL, Feb. 2024.

[FLI23] Duke Alumni Lifelong Learning: Big Questions – What is Real? Creating Alternative Realities at Duke University I3T Lab, online, May 2023.

[WoWMoM20] AR/VR/XR over Wireless Networks: Challenges and Opportunities, IEEE WoWMoM, virtual, Sept. 2020.

[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.

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

Invited Lectures

[VT26] Intelligent and Secure XR: Building Adaptive Spatial Systems That Know When They Are Wrong, *Virginia Tech CS Graduate Seminar: Intelligent XR*, October 2026.

[Duke19] Edge Computing: New Frontier in Distributed Systems and Networking, *Duke University CS514 Computer Networks/Distributed Systems*, November 2019.

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

Podcasts

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

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

SELECTED MEDIA COVERAGE

[DukePratt25] Transforming Reality: How Gaming Gear is Impacting Health Care, *Duke I/O Magazine*, Nov. 2025.

[DukeEyeCenter23] AR-assisted Guidance System for Retinal Laser Therapy, *Duke Eye Center VISION Magazine*, July 2023.

[DukeECE22] The Dawning of the Age of the Metaverse, *Duke ECE Magazine*, Oct. 2022, <https://magazine.pratt.duke.edu/2022/the-dawning-of-the-age-of-the-metaverse> **Duke ECE Magazine Cover Story**

[NSF22] Simulated Human Eye Movement Aims to Train Metaverse Platforms, *NSF Discoveries*, March 2022, <https://beta.nsf.gov/news/simulated-human-eye-movement-aims-train-metaverse>

[MITHorizon21b] Edge Computing and Other Technologies: An Overview of Edge Computing's Impact on Other Technology Fields, *MIT Horizon*, Edge Computing Series, Dec. 2021

[MITHorizon21a] The Advantages and Opportunities of Edge Computing, *MIT Horizon*, Edge Computing Series, Nov. 2021

[DukePratt20] Students Code Alternate Realities, *Duke Pratt School of Engineering*, Aug. 2020
<https://pratt.duke.edu/about/news/students-code-alternate-realities>

[NetworkWorld18] Augmented Reality, Fog, and Vision: Duke Professor Outlines the Importance of Smart Architectures, *Network World*, Oct. 2018
<https://www.networkworld.com/article/966430/augmented-reality-fog-and-vision-duke-professor-outlines-importance-of-smart-architectures.html>

[NewYorker17] If Donald Trump Were Actually a Battery, *The New Yorker*, May 2017
www.newyorker.com/tech/elements/if-donald-trump-were-actually-a-battery

[ECD17] OpenFog Reference Architecture: Baseline for Interoperability in the Industrial IoT Cloud-to-Things Continuum, *Embedded Computing Design*, March 2017

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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

<https://www.technologyreview.com/2014/05/20/172797/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

<https://www.technologyreview.com/2013/07/11/177399/human-motion-will-power-the-internet-of-things-say-energy-harvesting-engineers/>