

Y. T. Jade Morton

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Biography

Dr. Jade Morton is a University of Colorado Distinguished Professor, a Helen and Hubert Croft Professor of Engineering and Applied Sciences, and head of the Satellite Navigation and Sensing Laboratory in the Ann and H.J. Smead Aerospace Engineering Sciences Department at the University of Colorado (CU) Boulder. Prior to joining CU in 2017, she was an electrical engineering professor at Colorado State University and at Miami University where she led the creation of its Electrical and Computer Engineering Department. Dr. Morton's research interests lie at the intersection of satellite navigation technologies and remote sensing of the Earth's ionosphere, atmosphere, and surface. She is an author/co-author of over **400** technical publications, the lead editor of a two-volume set of books titled Position, Navigation, and Timing Technologies in the 21st Century, published by Wiley-IEEE Press and subsequently translated and published in Chinese, and a main contributor of a 2024 Nature paper on mapping the ionosphere using millions of cell phones. She has worked on numerous projects exceeding **\$25M** sponsored by AFOSR, AFRL, ARMY, DARPA, DHS, NASA, NOAA, NSF, ONR, Google, JPL, Lockheed Martin, Northrop Grumman, Orolia, Septentrio, Spirent, UCAR, etc. During the past 15 years, her research lab deployed a worldwide network of stations for monitoring space weather, radio interference, and other remote sensing applications. During her academic career, she has advised and mentored more than **60** graduate students, post-docs, and visiting students and scholars, given more than **120** invited/keynote/plenary presentations, and delivered over **80** short courses and tutorials for government labs, industry partners, and at professional conferences and workshops. She served as the Technical Editor of Navigation Systems for IEEE Transactions on Aerospace and Electronics Systems, an editor for Beidou Special Issue for Navigation, Journal of Institute of Navigation (ION), a member of editorial board for the Springer journal GPS Solutions, President and Satellite Division Chair of the ION, and contributed or led over **70** conferences/workshops as a program chair, general chair, session chair or panel chair. Dr. Morton is a member of the US Space-based PNT Advisory Board where she leads the Education and Science Innovation subcommittee, the Jicamarca Radio Observatory Advisory Board, the High-frequency Active Auroral Research Program (HAARP) Advisory Board, Scientific Advisory Board of the Institut d'Estudis Espacials de Catalunya (IEEC), and US DOT Transportation Center for Automated Vehicles Research with Multimodal AssurEd Navigation (CARMEN). She was a visiting research scientist at Google and a distinguished lecturer of the IEEE Aerospace and Electronics Systems Society. She is a recipient of AGU Space Physics and Aeronomy Richard Carrington Education and Public Outreach (SPARC) Award, Institute of Navigation Burka, Thurlow, Kepler, and Distinguished Service award, and IEEE PLANS Richard Kershner award. Dr. Morton is a fellow of IEEE, ION, and the Royal Institute of Navigation (RIN).

EDUCATION

Ph.D. (1991), Electrical Engineering, the Pennsylvania State University, University Park, PA
M.S. (1987), Electrical Engineering, Case Western Reserve University, Cleveland, OH
B.S. (1983), Physics, Nanjing University, Nanjing, China

PROFESSIONAL POSITIONS

University of Colorado Boulder, CO, Smead Aerospace Engineering Sciences Department

University of Colorado Distinguished Professor (2025 – Present)
Helen and Hubert Croft Professor (2021– Present)
Director, Colorado Center for Astrodynamics Research (CCAR) (2019 – 2023)
Associate Chair for Graduate Programs (2018 – 2019)
Thomas F. Austin Faculty Fellow (2017 – 21)
Electrical, Computer & Energy Eng. Department Courtesy Appointment (2021-Present)

Google Research, Google

Visiting Research Scientist (2022-2024)

Colorado State University, Fort Collins, CO, Electrical & Computer Engineering Department
Professor (2014 – 2017)

Miami University, Oxford, OH, Electrical & Computer Engineering Department
Professor (2009 – 2014), Associate Professor (2006 – 2009), Assistant Professor (2000 – 2006)

The University of Michigan, Ann Arbor, MI
Post-Doctoral Research Fellow (1991-1993), Space Physics Research Laboratories

The Pennsylvania State University, University Park, PA
Research Assistant (1987-1991), Electrical & Computer Engineering Department

Case Western Reserve University, Cleveland, OH
Research Assistant (1986-1987), Electrical Engineering & Applied Physics Department

Nanjing University, Nanjing, China
Faculty (1983-1985), Physics Department

PROFESSIONAL LEADERSHIP POSITIONS and SERVICES

- Affiliations and Membership
 - American Geophysical Union (AGU)
 - Institute of Electrical and Electronics Engineering (IEEE), Fellow (2014)
 - * IEEE Aerospace and Electronic Systems Society
 - * IEEE Geoscience and Remote Sensing
 - * IEEE Signal Processing
 - * IEEE Women in Engineering Society
 - Institute of Navigation (ION), Fellow (2015)
 - International Union of Radio Science (URSI)
 - Royal Institute of Navigation, Fellow (2019)
 - International Association of Geodesy
 - * Ionosphere and Space Weather Monitoring Using Ground and Spaceborne GNSS WG
 - * GNSS-R WG
- Offices/Positions Held
 - IEEE Fellow Selection Committee (2023-25)
 - ION Fellow Selection Committee (2023-24)
 - ION African Outreach Coordinator (2023-Present)
 - ION Nomination Committee Chair (2021-23, 2024-25)
 - URSI Commission G Vice-Chair (2021-22)
 - ION Executive Committee (2017-2023)
 - ION President (2019-21)
 - ION Pacific Rim Collaboration Liaison (2014-20)
 - ION Executive Vice President (2017-19)
 - ION Award Committee Member (2017-19)
 - ION Satellite Division Executive Committee (2010-16)
 - ION GNSS+ Student Paper Award Committee Chair (2014-16)

- ION Satellite Division Chair (2012-14)
- IEEE MTT Soc., Digital Signal Proc. Subgroup Technical Committee Member (2004-14)
- ION Satellite Division Vice Chair (2010-12)
- ION Eastern Region Member-at-Large (2012, 2009)
- Chinese Professional in Global Positioning Systems President (2010)
- ION Outreach Chair (2010-12)
- ION Brad Parkinson Thesis Award Committee Chair (2008)
- ION Dayton Section Chair (2006-7)
- ION Council Member (since 2006)
- Advisory Board Member
 - Institute of Space Studies of Catalonia (IEEC) Science Advisory Board (2022-present)
 - US National Space-Based PNT Advisory Board (2021-present)
 - US DOT Transportation Center for Automated Vehicles Research (2020-Present)
 - High Frequency Active Auroral Research Program (2020-present)
 - Jicamarca Radio Observatory, Peru (2018-present)
 - NASA Crustal Dynamics Data Information System (CDDIS) User WG (2021-2024)
 - Navmatic, US (2020-21)
- Conference/Workshop/Panel Organization
 - ION GNSS+ Conference Scientific Application of GNSS Panel Co-Chair, 2026.
 - European Navigation Conference Session Co-Chair, Reviewed ~15 abstracts, 2026.
 - Space Weather Workshop Panel Co-Chair, 2026.
 - ION Pacific Position, Navigation, & Timing Conference Plenary Co-Chair, 2024, 2026.
 - Munich Space Summit Panel Co-Chair, 2026.
 - NAE West Regional Meeting Quantum Space Application Panel Chair, 2026.
 - ION GNSS+ Conference Session Co-Chair, 2005, 2009, 2015, 2025
 - IEEE Int. Geoscience & Remote Sensing Sym. (IGARSS) Scientific Review Committee, 2025.
 - IEEE GNSS+R Meeting Session Co-Chair, 2025.
 - IEEE Position, Location, & Navigation Sym. (PLANS) Session Co-Chair. 2004, 2025.
 - ION Int. Technical Meeting Session Co-Chair, 2008, 2009, 2010, 2012, 2013, 2019, 2025.
 - AGU Meeting Session Co-Chair, 2018, 2024, 2025.
 - Beacon Satellite Symposium Session Co-Chair, 2022, 2025.
 - European Navigation Conference International Advisory Committee, 2023.
 - IEEE GNSS+R Meeting General Chair, 2023
 - Munich Navigation Summit Panel Chair, 2023
 - URSI General Assembly and Scientific Symposium (GASS) Session Co-Chair, 2023
 - IEEE Aerospace and Electronics Systems Society Award Committee, 2022, 2023.
 - ION GNSS+ Extended Reality and PNT Panel Co-Chair, 2022.
 - ESA Workshop on Satellite Navigation Technologies (NAVITEC) Track Co-Chair, 2022
 - Jicamarca 60th Anniversary Workshop Session Co-Chair, 2022
 - IEEE Int. Geoscience & Remote Sensing Sym. (IGARSS) Session Chair, 2021, 2022
 - USNC-URSI National Radio Science Meeting Session Co-Chair, 2019, 2021, 2022
 - Chinese Satellite Navigation Conf. (CSNC) US-ION Panel Co-Chair, 2012, 2013, 2014, 2018, 2019, 2021, 2022.
 - Coupling, Energetics, & Dynamics of Atmospheric Regions (CEDAR) Workshop, Session Co-Chair, 2018, 2019, 2021
 - ION Pacific Position, Navigation, & Timing Conference General Chair, 2019.
 - URSI Atlantic Radio Science Meeting Session Co-Chair, 2018
 - ION Pacific Position, Navigation, & Timing Conference Program Co-Chair, 2013, 2015, 2017.
 - IEEE RadarCon Conference Committee and Navigation Systems Track Chair, 2014
 - Ubiquitous Positioning, Indoor Nav., & Location Based Services Sci. Committee, 2012, 2014

- ION Global Navigation Satellite Systems+ Conf. General Chair, 2013
- ION Global Navigation Satellite Systems+ Conf. Program Chair, 2012
- Chinese Satellite Navigation Conference Section Co-Chair, 2011, 2012
- ION International Technical Meeting General Chair, 2012
- ION International Technical Meeting Program Chair, 2011
- Compass Workshop at ION GNSS Conference Co-Chair, 2010
- CPGPS International Technical Forum Session Co-Chair, 2010
- IEEE Int. Microwave Sym. Focused Session on Adv. in Positioning Sys. Co-organizer, 2009
- ION Global Navigation Satellite Systems Conf. Track Chair, 2007
- ION Annual Meeting Session Co-Chair, 2003, 2007
- ION National Technical Meeting Session Co-Chair, 2006, 2007
- IEEE International Microwave Symposium Workshop Co-Organizer, 2005
- AFOSR Communication & Navigation Program Review Workshop Organizer, 2005
- American Control Conference Session Chair, 2002
- Panel Members
 - NASA Commercial Satellite Data Earth Science Research and Applications, 2025.
 - AMS Panel on the Gannon Storm End User Impact, 2025.
 - ION GNSS+ Panel on Beyond GNSS, 2023.
 - ESA NAVITEC, GNSS/PNT for Science and Exploration Panel, 2022.
 - AIAA Annual Technical Symposium, Space Weather Impact on the LEO Orbital Environment Panel, 2021.
 - NASA Geospace Dynamics Constellation Interdisciplinary Scientists (GDCIS) Panel, 2021.
 - NSF Atmospheric and Geospace Sciences Program Review Panel, 2020.
 - Silicon Flatirons Panel on Resilience in Position, Navigation, and Timing, 2020.
 - NASA Space Weather Operation-to-Research Review Panel, 2020.
 - NASA Space Geodesy Research Review Panel, 2016.
 - NSF National Center for Atmospheric Research Observing Facilities Review Panel, 2016.
 - NSF Management and Operations of the Arecibo Observatory Review Panel, 2014.
 - NSF Coupling, Energetics, & Dynamics of Atmospheric Regions Prog. Review Panel, 2014.
 - White House Office of Science and Technology Policy, Auroral Research Workshop, 2014.
 - National Academies of Science, The Role of High-Power, High Frequency-Band Transmitters in Advancing Ionospheric/Thermospheric Committee Panel, 2013.
 - NSF, ECS – Integrative, Hybrid & Complex Systems Panel, 2005.
- Editorial Services
 - Associate Editor, Navigation, Journal of Institute of Navigation, 2022-23
 - Editorial board, Springer journal GPS Solutions, 2006-2022
 - Co-Editor, Special Issue on Beidou Satellite Navigation System, Journal of Navigation, 2019
 - Technical Editor, Navigation Systems, IEEE Trans. Aero. & Elec. Sys., 2014-18
 - Associate Editor, IEEE Trans. Aero. & Elec. Sys., 2008-18
- Journal Review: *EURASIP Journal on Advances in Signal Processing; Geophysical Research Letters; GPS Solutions; Journal of Aircraft; IEEE Communications Letters; IEEE Transactions on Aerospace & Electronics Systems; IEEE Transactions on Signal Processing; IEEE Transactions on Wireless; Journal of Atmospheric and Solar-Terrestrial Physics; Journal of Geophysical Research; Journal of Global Positioning Systems; Navigation, Journal of Institute of Navigation; Radio Science.*
- Book Review:
 - Kaplan, E. and C. Hegarty, Understanding GPS, Principles and Applications, 3rd ed., 2017.
 - Betz, J. W., *Engineering Satellite-Based Navigation and Timing: Global Navigation Satellite Systems, Signals, and Receivers*, Wiley-IEEE, 2016.

- Tsui, J. B. Y., *Global Positioning System Receivers, A Software Approach*, 2nd edition, Wiley & Sons, 2004.
- Proposal Review: NSF, AFOSR, AFRL, NASA
- Tutorials and Short Courses Offered to Universities, Industries, and Government Agencies:
 - Northrop Grumman Scholar-In-Residence Program Tutorials. 2025
 - History of Navigation
 - GPS-GNSS System Architecture
 - GNSS Signal Structure – Legacy Signals
 - GNSS Signal Structure – Modernized Signals
 - GNSS Receiver Architecture
 - IF Sampling and ADC
 - GNSS Signal Acquisition
 - GNSS Signal Acquisition in Frequency Domain and Performance Quantification
 - GNSS Signal Tracking
 - African GNSS Outreach Workshop
 - Introduction to GNSS, 2025
 - Citizen Science: TEC monitoring from smartphones, 2025
 - ISWI: GNSS Observations of the Ionosphere from Space, 2023
 - GNSS Reflectometry and Ionospheric Measurements, 2022, 2023, 2024
 - GNSS Multipath (delivered on behalf of Gary McGraw), 2023
 - Ionospheric Effects, Monitoring, and Mitigation, 2022
 - Measuring Ionospheric Irregularities Using GNSS, 2022
 - GNSS for Ionosphere and Space Weather Monitoring, 2019
 - GNSS for Ionosphere and Space Weather Monitoring, 2018
 - Introduction to GNSS Receivers, 2018
 - GNSS Software Receiver Laboratory, 2018
 - Software-defined GNSS Receivers for Ionospheric Monitoring, 2017
 - Autonomous Vehicle GNC, 2009, 2010
 - Robotics Laboratory, 2009, 2010
 - Air Force Research Laboratory, Wright Patterson Air Force Base, OH
 - Software Receiver Technologies, 2008, 2009
 - Consortium of Ohio Universities on Navigation and Timekeeping (COUNT) Short Courses:
 - Advanced GNSS Receivers, Webinar, 2020, 2021.
 - Advanced GNSS Receivers, Northrop Grumman, CA, 2019
 - Advanced GNSS Receivers, Dayton, OH, 2018, 2019
 - Ionospheric Scintillation Monitoring Receivers, Dayton, OH, 2016, 2017
 - Ionospheric Scintillation and GNSS Receivers, Dayton, OH, 2015
 - GNSS Remote Sensing, Dayton, OH, 2014
 - GNSS and Space Weather, Dayton, OH, 2013
 - High Sensitivity GNSS, Rockwell Collins, Cedar Rapids, IW, 2012
 - High Sensitivity GNSS Receivers, Dayton, OH, 2012
 - Ionospheric Scintillation, Honeywell, Minneapolis, MN, 2011
 - Ionospheric Scintillation, Dayton, OH, 2011
 - Ionospheric Effects on GNSS, Columbus, OH, 2009, 2010
 - Software Receiver Technologies, Dayton, OH, 2007, 2008
 - Croucher Foundation, Hong Kong
 - Ionosphere Scintillation Monitoring Receivers, 2018
 - GNSS Software Receiver Algorithms and Applications, 2014
 - European Space Agency/Joint Research Center Summer School
 - Basics of GNSS, 2025, 2026

- Ionosphere Effects, 2025
- Nanyang Technological University, Singapore, 2015
 - Software GNSS Receiver Algorithms
 - Atmospheric Remote Sensing Using GNSS
- IEEE National Aerospace & Electronics Conference
 - High Sensitivity GNSS, Dayton, OH, 2012
 - Software Receivers, Dayton, OH, 2008
- ION GNSS+ Conference Tutorials
 - Ionospheric Effects, Monitoring, and Mitigation, 2021, 2022, 2024, 2025
 - Beidou Navigation Satellite System (co-taught w/Prof. Mingquan Lu), 2018
 - High Sensitivity GNSS, 2011, 2012
- Polar Aeronomy & Radio Science Workshop, HAARP, AK.
 - GNSS Observations of Artificial Heating Effects on HAARP, 2023, 2024, 2025
 - Ionospheric Effects on GNSS, 2008, 2009, 2010, 2011, 2012
- Position, Navigation, and Time (PNT) Workshop, South Korea, Seoul, 2016
 - Introduction to GNSS, Part 2: Receiver Processing
 - Ionosphere Effects
 - Remote Sensing Using GNSS Networks
- UCAR, Boulder, CO. 2023
 - GNSS Altimetry
- US-Singapore PNT Workshop, Maui, HI. 2014
 - Magnetic Field Modeling, 2014
 - Ionosphere Modeling, 2014
 - Introduction to Software-Defined Radio, 2014
 - GPS 101, 2010
 - High Sensitivity GPS, 2010

SELECTED UNIVERSITY COMMITTEES AND SERVICES

- University of Colorado at Boulder
 - College of Engineering and Applied Science First-Level Review Committee, 2025-27.
 - Undergraduate Curriculum Committee, ASEN 3503 Lead Developer, 2025-26.
 - Astrodynamics Focus Lead and Graduate Committee, 2024-25.
 - Faculty Research Award Committee, College of Engineering and Applied Science, 2025.
 - Faculty Promotion, Tenure, and Reappointment Review Committee, 2024-25.
 - Faculty Search Committee, 2024.
 - Director for Colorado Center for Astrodynamics Research (CCAR), 2019 – 2023.
 - Undergraduate Curriculum Committee, Instrumentation/Avionics Group Lead, 2021-2022.
 - College of Engineering and Applied Sciences, Dean Search Committee, 2021-22.
 - Electrical, Computer, and Energy Engineering Department, Faculty Search Committee, 2021-22.
 - Undergraduate Enrichment Programs, Zoom into Res. and Creative Work Faculty Panel, 2021.
 - College of Engineering and Applied Sciences, Faculty Search Committee, 2020-21
 - Associate Chair for Graduate Programs, Aerospace Engineering Sciences Dept., 2018- 2019
 - Aerospace Engineering Science Department Research Strategic Vision Committee, 2018
 - Executive Committee Member, Aerospace Engineering Sciences Dept., 2017-Present
 - Search Committee Member, Aerospace Engineering Sciences Dept., 2017-18
 - Committee member, Joint AES-EE MS degree program, 2017-18
 - Promotion and Tenure Evaluation Committee, 2017-present
 - Faculty Mentoring, 2017-Present
 - Senior Project Advisory Board, 2017-18
- Colorado State University

- College of Engineering Strategic Plan Committee, Initiative 5 Enhance the Diversity of COE Students, Faculty and Staff, and Promote a Culture of Inclusiveness, 2016
- Electrical and Computer Engineering Department, Faculty Promotion and Tenure (PNT) Committee, 2014-2017
- Miami University
 - Promotion & Tenure Committee, 2006-14
 - Mentor for Women Faculty, 2010-2014
 - President 2020 Plan Target Goal Team Member, 2012-13
 - Research Award Committee, 2005-7, 2009-13
 - Curriculum Committee, 2004-5, 2008-9, 2012-13
 - Panel member, Academic Success Workshop for International Students, 2010, 2011
 - Sigma Xi Researcher of Year Award Committee Member, 2011-12
 - Sigma Xi Researcher of Year Award Committee Chair, 2011
 - ABET Accreditation Committee, 2001-2011
 - Advisor, Society of Woman Engineers, 2008-2010
 - Administrator Evaluation Committee, 2006-7
 - Faculty Search Committee Chair, 2004-5, 2008-9
 - Research Council Member, 2005-7
 - Faculty Search Committee, 2000-2003, 2006-7
 - Search Committee, Vice President for Institutional Diversity, 2007
 - Chair, ECE Undergraduate Curriculum Committee, 2005-6
 - Search Committee Member, Associate Provost and Dean of Graduate School, 2005-6
 - Search Committee, Assistant to the President and Associate Provost for Diversity, 2004-5
 - Search Committee, ECE Program Director, 2004-5
 - New ECE Programs Undergraduate Curriculum Committee, 2000-2
 - Principle Investigator, the Presidential Fusion Project, 2001-2
- Outreach
 - Women's Dinner co-host at European Space Agency GNSS Summer School, 2025
 - Women's Dinner host at Africa GNSS Capacity Building Workshop, 2022, 2023, 2024, 2025.
 - Sponsor for Africa university faculty and student professional travels, 2018, 2024
 - URSI National Radio Science Meeting Student Paper Awards Judge, 2019
 - AGU Outstanding Student Presentation Awards Judge, 2018
 - Co-host and organizer, STEM First Abilities outreach to high school female students, 2011-12
 - Coach, Talawanda High School Robotics Competition Team, 2008-2010
 - Speaker and workshop organizer for numerous Girl Scouts events, 2002-2010

AWARDS AND HONORS

- Fellowships and Professorship
 - Distinguished Professor, University of Colorado, 2025-Present
 - Otto Mønsted Guest Professor, Technical University of Denmark, 2025-2027.
 - Helen and Hubert Croft Professor, University of Colorado Boulder, 2021-Present
 - Thomas F. Austin Faculty Fellow, University of Colorado Boulder, 2017-21
 - Fellow, Royal Institute of Navigation (RIN), 2019
 - Fellow, Institute of Navigation (ION), 2015
 - Fellow, IEEE, 2014
 - Tan Chin Tuan Faculty Fellow, Nanyang Technological University, Singapore, 2014-15
 - National Research Council/AFOSR Summer Faculty Fellow, 2002, 2003, 2004
- General Recognition
 - AGU Space Physics and Aeronomy Richard Carrington Education and Public Outreach (SPARC) Award, 2022

- ION Distinguished Service Award, 2021
- IEEE Aerospace and Electronic Systems Society Distinguished Lecturer, 2019-21
- Institute of Navigation Johannes Kepler Award, 2020
- IEEE Aerospace and Electronic Systems Society Richard B. Kershner Award, 2020
- Distinguished Performance Award, Aerospace Engineering Sciences Department, University of Colorado Boulder, 2019
- GPS World Leadership Service Award, GPS World Magazine, 2015
- ION Thurlow Award, 2013
- Woman's Leadership Award, Miami University, 2013
- Jennie Elder Suel Distinguished Woman of Color Award, Miami University, 2013
- Research Awards and Recognition
 - National Radio Science Meeting Best Paper Award, 3rd place, 2026.
 - UCAR Outstanding Accomplishment Award in Publication Nominee, 2025.
 - University of Colorado Boulder Aerospace Engineering Sciences Department Outstanding Research Award, 2025.
 - Spirent Academic Forum Best Presentation Award, 2025.
 - AGU Journal Space Weather Top 10 Most-Cited Papers, 2024.
 - Navigation, Journal of Institute of Navigation, Top Downloaded Manuscript, 2022.
 - University of Colorado Boulder College of Engineering and Applied Sciences Faculty Research Award, 2021
 - AGU Hydrology Section Remote Sensing Technical Committee Prize, 2021
 - ION GNSS+ Conference Best session paper, 2004, 2007, 2011, 2014, 2015, 2016, 2017(x2), 2018, 2019, 2020(x4), 2023
 - Navigation, Journal of ION, Samuel M. Burka Award, 2017
 - Distinguished Scholar, Miami University, 2013
 - Colloquium Sci. Fundamental Aspects Galileo Program Best paper, 2013
 - IEEE/ION PLANS Conference Best paper in track, 2012
 - Miami University School of Eng. & Applied Sci. Outstanding Researcher, 2005, 2011
 - IEEE NAECON Best paper, 2011
 - Miami University Sigma Xi Researcher of the Year, 2009
 - Miami University Research Advisory Council Shoupp Award, 2001, 2006
 - AFRL WPAFB Charles Ryan Award Nominee, 2005
 - Penn State University Annual Graduate Research Exhibition, First place, 1990
- Teaching Awards
 - University of Colorado Boulder College of Engineering and Applied Sciences Outstanding Faculty Advisor Award, Nominee, 2023.
 - Miami University Associated Student Government Outstanding Professor Award finalist, 2012; Nominee, 2004, 2006, 2011
 - Miami University School of Engineering & Applied Science Teaching Excellence award, 2007
 - Miami University Alumni Association Teaching Effective Award nominee, 2006, 2007
 - Miami University Committee for Enhancement of Learning Teaching Excellence Award, 2005
- Advisor for Student Teams Awards
 - CEDAR/GEM Workshop Student Poster Competition, 3rd place, 2025
 - CEDAR/GEM Workshop Student Poster Competition, 1st place, 2024.
 - International Conference on GPS Radio Occultation, Excellent Presentation award, 2023.
 - AIAA SciTech International Conference, 1st place team, 2023
 - Beacon Satellite Symposium, 1st place poster, 2022
 - AIAA Student Paper Competition, 1st place team, 2022
 - AIAA Student Paper Competition, 3rd place team, 2018
 - International Sym. GNSS, Best student presentation, 2017

- ION Autonomous Snowplow Competition, 2nd place team, 2011, 2012, 2013; 1st place team and best paper and best presentation, 2014
- Intelligent Ground Vehicle Competition, 5th place design award, 2013
- ION Autonomous Lawnmower Competition, 2nd place team, 2004, 2012
- Miami U. Interdisciplinary Tech. Dev. Competition (MUITDC), 1st place team, 2021, 2012
- Int. Waveform Diversity & Design Conf. Student Paper Competition, 2nd place, 2012
- ION MiniUrban Challenge Ohio Competition, 1st place team, 2009; 2nd place team, 2010
- CPGPS International Technical Forum Best student paper award, 2007

COURSES TAUGHT

- University of Colorado (times taught X)
 - ASEN 3300 Aerospace Electronics and Communications (5X)
 - ASEN 4018/4028 Aerospace Senior Projects (3X)
 - ASEN 5210 Remote Sensing Seminar (1X)
 - ASEN 5090 Introduction to GNSS (1X)
 - ASEN 5018 Graduate Project (1X)
 - ASEN 5028 Graduate Project (1X)
 - ASEN 6091 GNSS Receiver Architecture (1X)
 - ASEN 6519 GNSS for Remote Sensing (2X)
 - ASEN 6092 GNSS for Remote Sensing (1X)
- Colorado State University (times taught X)
 - ECE 511 Global Navigation Satellite Systems Receivers (3X)
 - ECE 581A6 Global Navigation Satellite Systems (3X)
- Miami University (Taught each course numerous times)
 - ECE/EAS 102 Problem Solving and Design
 - ECE/MME 203 Electric Circuit Analysis I
 - ECE/MME 303 Computer-aided Experimentation
 - ECE 305 Electric Circuit Analysis II
 - ECE 306 Signals and Systems
 - ECE 448/449 Senior Capstone
 - ECE 465/565 Introduction to GPS
 - ECE 475/575 Software GPS Receivers

THESIS ADVISING/CO-ADVISING

- PhD Theses
 - *Current Students*
 1. *Pin-Hsuan Cheng*: Ground and Spaceborne GNSS Monitoring of Ionospheric Responses to Natural Hazardous Events. *Expected Graduation: May 2026.*
 2. *Sophie Anderson*: Grazing Angle GNSS Reflectometry for Remote Sensing of Ice Sheet Surface Characteristics. Awards: NSF Graduate Fellowship, 2022 IGARSS student travel grant. *Expected Graduation: August 2026.*
 3. *Brenna Royersmith*: Improving Ionospheric Tomography Using New GNSS Measurements. Awards: First Place poster at 2022 Beacon Satellite Symposium; Third Place poster at 2025 CEDAR Workshop; Third Place in 2026 URSI NRSM Young Scientist Paper Competition. *Expected Graduation: May 2026.*
 4. *Maggie Scott*: Spaceborne Grazing Angle GNSS-Reflectometry for Inland Water Body Mapping. Award: NASA FINESST. *Expected Graduation: December 2026.*
 5. *Jiawei Xu*: High Precision and Accuracy GNSS Receiver Signal Tracking and Filtering in Challenging Environments. Awards: Best Presentation at 2023 ION GNSS+; Lockheed Martin Endowed Graduate Fellowship. *December 2026.*

6. *Madeleine Evans*: Low Elevation Satellite Signals for Ionosphere Monitoring. Awards: Excellent Presentation Award at 2023 International Conf. on GPS Radio Occultation, First Place in Ionosphere-Thermosphere Poster Competition at 2024 CEDAR Workshop. *Expected Graduation: May 2027.*
 7. *Jason Li*: Arctic Ionosphere Mapping Using Signals-of-Opportunity Transmitted from LEO Satellites. *Expected Graduation: December 2027.*
 8. *Neeti Sonth*: Atmospheric Water Vapor Retrieval from Ground and Spaceborne GNSS-R Measurements. Award: NASA FINESST. *Expected Graduation: August 2028.*
- *Graduated Students*
 1. *Yu Jiao*, Low-Latitude Ionospheric Scintillation Signal Simulation, Characterization, and Detection on GPS Signals, Colorado State University, 2017. Awards: Bradford Parkinson Thesis Award; ION Burka Award; ION GNSS+ Best Presentation.
 2. *Jun Wang*, Spaced-GNSS Receiver Techniques for Ionospheric Irregularity Drift Velocity and Height Estimation Based on High-Latitude GNSS Scintillation, Colorado State University, 2018.
 3. *Dongyang Xu*, GPS Equatorial Ionospheric Scintillation Signals Simulation, Characterization, and Estimation, Colorado State University, 2019. Award: ION GNSS+ Best Presentation.
 4. *Brian Breitsch*, Characterization and Mitigation of GNSS Carrier Phase Cycle Slips, University of Colorado Boulder, 2021. Awards: Lockheed Martin Endowed Graduate Fellowship; DOE GAANN Fellowship; ION GNSS+ Best Presentation.
 5. *Ian Collett*, GNSS Reflectometry for Ocean Surface Remote Sensing, University of Colorado Boulder, 2021. Awards: John A Vise Award; Lockheed Martin Endowed Graduate Fellowship; ION GNSS+ Best Presentations.
 6. *Yang Wang*, Advanced GNSS Receiver Signal Processing for Remote Sensing Applications, University of Colorado Boulder, 2021. Awards: Aerospace Engineering Sciences Department Outstanding Graduate Research Award; ION GNSS+ Best Presentation; Lockheed Martin Endowed Graduate Fellowship; AGU Hydrology Section Prize; Bradford Parkinson Thesis Award; NASA Heliophysics Early Career Award.
 7. *Yunxiang Liu*, Machine Learning for GNSS-Based Remote Sensing Applications, University of Colorado Boulder, 2021. Awards: ION GNSS+ Best Presentation.
 8. *Stephen T. Dittmann*, Improving Earthquake Monitoring and Early Warning Using GNSS Velocities and Machine Learning, University of Colorado Boulder, 2023. Awards: John A. Vise Award; EOS Spotlight.
 9. *Maoran Zhu* (Co-advising with Professor Yuan-Xin Wu), Shanghai Jiaotong University: Inertial-based Navigation State Estimation by Polynomial Optimization and Applications, 2023. Awards: Bradford Parkinson Thesis Award.
 - *The following were visiting PhD students who performed their PhD thesis research under my supervision:*
 10. *Bo Han*, GNSS Radio Occultation for Atmospheric Profiling, Visiting PhD student from Nanyang Technological University, Singapore, 2017.
 11. *Chen Wang*, Study on GNSS-Based Ionospheric Model, Applications, and Service System, Visiting PhD student from Tongji University, China, 2014.
 12. *Nazalie Kassabian*, Design of Pilot Channel Tracking Loop Systems for High Sensitivity Galileo Receivers, Visiting PhD student from Politecnico di Torino, 2013.
 13. *Kyle Kauffman*, Radar Based Navigation in Unknown Terrain, Air Force Institute of Technology, joint advising with Professor John Raquet, 2012.
 14. *Senlin Peng*, A Multi-Constellation Multi-Frequency GNSS Software Receiver Design for Ionosphere Scintillation Studies, Visiting PhD student from Virginia Tech, joint advising with Professor Wayne Scale, 2012.

15. *Hu Wang*, Research of Ground and Space Based GPS Ionospheric Inversion Technique and Their Applications, Tongji University, China, 2012.
 16. *Xin Chen*, Novel Multipath Mitigation Algorithms and Architectures in GNSS Receivers, Visiting PhD student from Politecnico di Torino, 2012.
- MS Theses
 1. *Swastik Bhattacharya*, Remote Sensing Techniques for Surface Water Detection, University of Colorado Boulder, 2023.
 2. *Kahn-Bao Wu*, GNSS Signal Disturbance Detection and Classification Using Machine Learning, University of Colorado Boulder, 2023.
 3. *Sergei Bilardi*, A GNSS Signal Simulator and Processor for Evaluating Acquisition and Tracking of GPS-like Signals from Satellites in LEO, University of Colorado Boulder, 2021.
 4. *Brian Breitsch*, Linear Combinations of GNSS Phase Observables to Improve and Assess TEC Estimation Precision, Colorado State University, 2017.
 5. *Gregory Myer*, Ionospheric Scintillation Effects on GPS Measurements and Algorithms to Improve Positioning Solution Accuracy, Colorado State University, 2017.
 6. *Harrison Bourne*, An Algorithm for Accurate Ionospheric Total Electron Content and Receiver Bias Estimation Using GPS Measurements, Colorado State University, 2016.
 7. *Mark Carroll*, Advanced GPS Receiver Algorithms for Assured Navigation During Ionospheric Scintillation, Miami University, 2014.
 8. *Hang Yin*, An Adaptive Multi-Frequency GPS Tracking Algorithm, GPS CNAV Message Decoding, and Performance Analysis, Miami University, 2014.
 9. *Dongyang Xu*, Beidou and GPS Dual Constellation Vector Tracking During Ionospheric Scintillation At Equatorial Region, Miami University, 2014.
 10. *Ruihui Di*, A USRP-Based Flexible GNSS Signal Recording and Playback System: Performance Evaluation and Study, Miami University, 2013.
 11. *Brian Jameson*, A Novel Multi-Functional Software-Defined Radar: theory and Experiment, Miami University, Co-advised with Prof. Dmitriy Garmatyuk, 2013.
 12. *Yu Jiao*, High Latitude Ionospheric Scintillation Characterization, Miami University, 2013.
 13. *Jun Wang*, Spectral Characterization of Ionosphere Scintillation: Algorithms and Applications, Miami University, 2013.
 14. *Fei Niu*, Performances of GPS Signal Observables Detrending Methods for Ionospheric Scintillation Studies, Miami University, 2012.
 15. *Xiaolei Mao*, GPS Carrier Signal Parameters Estimation Under Ionosphere Scintillation, Miami University, 2011.
 16. *Praveen Vikram*, Event Driven GPS Data Collection System for Studying Ionospheric Scintillation, Miami University, 2011.
 17. *Jason Smith*, A Sensor Fault Detection Simulation Tool, Miami University, 2007.
 - Undergraduate Honors Theses
 - *Brenna Royersmith*, Time Lag Between 2020 Geomagnetic Storms and Ionospheric Scintillation Detection, University of Colorado Boulder, 2021.

POSTDOCS, Research Associates, Research Assistants, and Research Affiliates:

Current:

1. Dr. Andrew Sun, Postdoc, 2026-Present
2. Harrison Bourne, Professional Research Associate, 2016-Present.
3. Dr. Brian Breitsch, Postdoc, 2021-23; Research Associate, 2023-Present
4. Dr. Hyeyeon Chang, Research Associate, 2023-Present
5. Dr. Jihong Huang, Postdoc, 2024-Present.
6. Dr. Carolyn Roesler, Research Associate, 2019-Present.

7. Steve Taylor, Professional Research Assistant, 2014-Present.
8. Dr. Zhuoyi (Joey) Zhao, Postdoc, 2024-Present.
9. Dr. Chun Yang, Research Affiliate, 2023-Present.

Alumni (PhD student and Postdocs):

10. Dr. S. Tim Dittmann, Research Associate, 2023-24. Current: Research Scientist, MUON Space.
11. Dr. Wei Li, Postdoc, 2024-2025. Current: Postdoc at University of Tennessee Knoxville.
12. Dr. Lei Liu, Postdoc, 2020-2022; Research Associate, 2022-2023. Current: Researcher at University of Michigan.
13. Dr. Yang Pan, Postdoc, 2024-2025. Current: Researcher at University of Texas Arlington.
14. Dr. Charles Rino, Research Associate, 2015-2020, 2023-2024. Current: retired.
- Dr. Jiahua Zhang, Postdoc, 2021- 2023. Current: Research Scientist, UCAR
15. Dr. Yang Wang, Research Associate, 2021-22. Current: Assistant Professor, University of Tennessee Knoxville.
16. Dr. Ian Collett, Professional Res. Associate, 2021. Current: Research Scientist, Orion Space Inc.
17. Dr. Kirsten Strandjord, Postdoc, 2020-2021. Current: Assistant Professor, University of Minnesota.
18. Dr. Jun Wang, Professional Research Associate, 2017-18. Current: Unknown
19. Dr. Pai Wang, Postdoc, 2018-2020; Research Associate, 2020-2021. Current: Associate Professor, Wuhan University.
20. Dr. Zhe Yang, Postdoc, 2018-2020. Current: Associate Professor, Tongji University.
21. Dr. Rong Yang, Postdoc, 2017-2019. Current: Associate Professor, Shanghai Jiaotong University.
22. Dr. Yanhong Kou, Postdoc, 2009-10. Current: Associate Professor, Beihang University.

VISITING SCHOLARS

1. Lily Qiao (2026), University of New South Wales, Australia.
2. Sarah Beeck (2025), Postdoc, Denmark Technical University, Denmark.
3. Wanchi Wu (2024). PhD student, National Chengkung University, Taiwan.
4. Cathy Chang (2023, 2025). PhD student, KAIST, South Korea.
5. Andrew Sun (2023). PhD student, KAIST, South Korea.
6. Jieqing Yu (2019-2020). Associate Professor, China University of Mining & Technology, China
7. Byungwoon Park (2018-2020). Associate Professor, Sejong University, South Korea
8. Hyeyeon Chang (2019-2020). PhD student, KAIST, South Korea
9. Zhe Yang (2015). PhD student, Hong Kong Polytechnic University, Hone Kong, China
10. Xiaoli Liu (2013-14). Associate Professor, Wuhan University, China
11. Hu Wang (2011-12). Postdoc, UCSD, US
12. Hong Wu (2009-2010). Professor, Nankai University, China

SELECTED FUNDED RESEARCH PROJECTS

- Air Force Office for Scientific Research (AFOSR):
 1. Institution PI: A Unified Lower Ionospheric Space Weather Diagnostic, \$335K, 2023-26.
 2. Co-PI: DURIP – Deep learning laboratory system for space weather forecasting improvement. \$430K, 2021-22.
 3. PI: DURIP – Distributed small multi-GNSS arrays for ionospheric and space weather research. \$430K, 2019-20.
 4. PI: DURIP - Acquisition of a multi-constellation GNSS data collection array for high latitude ionospheric and space weather research. \$146K. 2016-17.
 5. PI: High latitude ionospheric scintillation studies using multi-constellation multi-band software GNSS receivers. \$396K. 2014-17.

6. PI: Developing satellite signal parameter estimation algorithms for high-accuracy applications. \$650K. 2010-13.
 7. Co-PI: Precise GPS signal tracking in interference and multipath environment using a multi-channel software receiver. \$288K. 2008-10.
 8. PI: Three-frequency based high precision GPS receiver for navigation applications. \$285K. 2007-10.
 9. PI: DURIP - A multi-channel dual frequency radio frequency front end for anti-jamming software GPS receiver research. \$223K. 2007-8.
 10. PI: Integrated reconfigurable aperture, digital beam forming, and software GPS receiver for UAV navigation. \$263K. 2004-7.
 11. PI: Developing signal processing algorithms for weak GPS signal acquisition in urban environment. \$50K. 2003-4.
- Air Force Research Laboratory (AFRL):
 12. PI: Atmospheric Effects on LEO Satellite-Based Navigation Signals: Assessment and Mitigation, \$1.08M. 2023-25.
 13. Co-PI: On-Demand PNT. Total \$3.3M. Co-PI share \$825K. 2020-24.
 14. PI: Assured PNT through all modalities, \$1M. 2019-22.
 15. PI: Investigation of ionospheric effects on new satellite navigation signals. \$450K. 2019-22.
 16. PI: Capturing and characterization of the effects of plasma turbulence. \$66K. 2018-19.
 17. PI: Advanced novel spectrum warfare environment research. \$1.521M. 2015-19.
 18. Co-PI: Software-defined multi-functional LPI/LPD adaptive radar for network-centric applications. \$255K. 2015-18.
 19. PI: Collaborative research and development program on navigation and time-keeping with AFRL/RYRN. \$890K. 2008-15.
 20. Co-PI: Adaptive radar imaging with knowledge-based SAR. \$58K. 2012-13.
 21. PI: LADAR EO GPS/INS Atomic Clock Navigation Demonstration and Worldwide Accurate Sensor Positioning System technical support. \$120K. 2007-8.
 22. PI: An integrated spatial digital beam forming and adaptive periodogram technique for interference and jamming cancellation. \$15K. 2006.
 23. PI: Integrated navigation reference systems for micro-UAV information applications. \$65K. 2005-6.
 24. PI: Algorithm development for GPS interference cancellation. \$10K. 2002.
 - Air Force Asian Office of Aerospace Research and Development (AOARD):
 25. Co-PI: Determination of precise satellite orbital position using multi-band GNSS signals. \$100K. 2015-17.
 - Army:
 26. Institution PI: LEO-PNT, Phase 1, \$55K, subcontract from QuNav, 2022.
 27. Institution PI: Networked PNT solution (PNT-Net) for GPS-denied navigation, Phase I, \$40K subcontract from QuNav, 2020.
 - DARPA:
 28. Institution PI: HEARTBEAT – Heliosphere to Earth Atmosphere Rendering Through Building Excellent Artificial-intelligence Training. \$853,413. 2019-21.
 - Dayton Area Graduate Studies Institute:
 29. PI: Multi-domain analysis of GNSS signals. \$43.5K. 2013-14.
 30. PI: Space weather effects on GNSS. \$43.5K. 2013-14.
 31. Co-PI: Physics-based modeling of sensor environment. \$43.5K. 2013-14.
 32. PI: Advanced GPS receiver algorithms for assured navigation. \$80K. 2011-13.
 33. Co-PI: Cognitive radar for autonomous systems. \$95K. 2011-13.

34. PI: High accuracy GPS receiver algorithms for navigation. \$73K. 2008-10.
35. PI: Multi-channel RF receiver/exciter systems. \$59K. 2006-7.
36. PI: Intelligent sensing and control for autonomous vehicles. \$43K. 2005-6.
- DHS:
 - 37. PI: Networked GPS spoofing detection for power systems. Subcontract from University of Illinois Urbana-Champaign. \$40K. 2017-18.
 - Department of Education
 - 38. Co-PI: Graduate Assistantships in Areas of National Need (GAANN) Critical Aerospace Technologies. \$1.189M total, \$99K per Co-PI. 2019-20.
 - JPL
 - 39. CU PI: A new phase in GNSS-R: using coherent phase measurements to estimate surface parameters. \$52K. 2019-20.
 - NASA:
 - 40. PI: Engineering and Scientific Assessment of CSDA GNSS-R Data Products. \$375K. 2026-29.
 - 41. PI: FINESST - Mapping atmospheric water vapor over tropical oceans using coherent spaceborne GNSS-R measurements. \$150K. 2025-28.
 - 42. CU PI: Space Weather Research and Technology Application (SPARTA) Center of Excellence. Total \$10M. CU share: \$1.099M, 2023-28.
 - 43. Co-I: Comprehensive Evaluation of Grazing Angle GNSS-R Data from PlanetiQ Satellites. \$120K. 2024-25.
 - 44. PI: Mapping Polar Atmospheric Water Vapor Content Using Grazing Angle GNSS-R Measurements. \$350K. 2023-25.
 - 45. Co-I: Water Surface Gradient Measurement Using GNSS-R from Smallsat. \$362K. 2023-25.
 - 46. PI: FINESST - Detecting Abrupt Permafrost Thaw and Its Drivers in North America using GNSS-Reflectometry. \$150K. 2023-26.
 - 47. PI: GNSS-R and IF Data Assessment. \$375K. 2022-25.
 - 48. PI: Next Generation CYGNSS Navigation Receiver Development. Subaward from University of Michigan. \$183K, 2022.
 - 49. PI: Utilizing GNSS reflectometry measurements for high latitude ionospheric TEC mapping. \$515K, 2021-23.
 - 50. PI: Spire GNSS radio occultation measurement analysis. \$252K, 2021-23.
 - 51. PI: Inland water mask and surface gradient mapping based on coherent carrier phase tracking of CYGNSS raw IF data. \$570K, 2021-23.
 - 52. Co-PI: Ionospheric gravity wave decoupling from Tsunamis and applications. Subaward from JPL. \$100K, 2021-23.
 - 53. PI: Spire CubeSat GNSS-R measurements for physical oceanography research: a comprehensive analysis. \$140K, 2020-21.
 - 54. Co-PI: Phase-delay altimetry from reflected GNSS signals for resolving mesoscale ocean circulation features. \$623K, 2019-22.
 - 55. PI: Multi-GNSS radio occultation algorithms development for ionosphere irregularity studies with augmentation from ground-based GNSS networks. \$800K. 2015-20.
 - NOAA:
 - 37. PI: Data Venture – Ionosphere TEC and Scintillation Observations Using GNSS Reflectometry. \$525K. 2025-28.
 - 38. PI: Ocean Surface Wind Data Pilot Project. \$165K. 2024-25.
 - 39. PI: NOAA Space Weather Data Pilot Program. \$291K. 2023-24.
 - 40. PI: Low elevation multi-GNSS signal processing for remote sensing. \$532K. 2021-22.

- NSF:
 38. PI: Small Multi-GNSS Data Collection Array for Ionosphere and Space Weather Monitoring. *\$1.275M. 2025-30.*
 39. PI: MRI - Acquisition of multi-constellation GNSS data collection arrays for low latitude ionospheric effects studies. *\$253K. 2014-17.*
 40. Co-PI: A Study on the Circulation and Structure of Metallic Ions in the Mid-latitude Ionosphere. *\$342K. 2007-12.*
 41. Co-PI: Dual-beam incoherent scatter radar study of the mesosphere. *\$210K. 2003-6.*
- Office of Naval Research (ONR):
 42. PI: Multiband receivers for polar ionosphere monitoring. *\$439,043. 2025-26.*
 43. PI: PRISM - Improving high latitude ionosphere numerical assimilation model. *\$1.08M. 2023-26.*
 44. Co-PI: Sundial – GNSS-R TEC estimation over equatorial oceans. *\$890K. 2025-28.*
 45. Institution PI: DURIP – Multi-constellation GNSS measurements of atmospheric refractivity in the marine boundary layer. Subcontract from UCSD. *\$150K. 2021-22.*
 46. Institution PI: STTR – Novel nanosat payloads for Naval weather needs. Subcontract from ASTRO. *\$330K. 2017-21.*
- Private Industries
 47. Co-PI, Scholar in Residence, Northrup Grumman, *\$170K. 2024-25.*
 48. Visiting Research Scientist, Google. *2022-24.*
 49. PI, GNSS simulator, academic partner program, Spirent, *\$300K. 2024.*
 50. PI, GNSS Skydel software and simulation tool, in-kind donation, Orolia. *\$300K. 2020.*
 51. PI, GPS signal monitoring via machine learning, Lockheed Martin. *\$100K. 2019-20.*
 52. PI, Septentrio, Corporate Gift Fund. *\$13K. 2020.*
 53. Co-founder, Consortium of Ohio Universities on Navigation and Timekeeping (COUNT) industrial affiliates. *\$320K. 2007-22.*
 54. PI, Honeywell, Ionosphere error research for Ground-Based Augmentation Systems (GBAS). Corporate Gift Fund. *\$70K. 2016-17.*
 55. Equipment donations from Freewave Technologies, John Deere/NavCom, Novatel, NPC, Snapper, Symmetricom, Topcon, Trimble Navigation. *~\$300K. 2004-14.*

SELECTED INVITED PRESENTATIONS:

1. Beacon Satellite Symposium: Machine Learning Techniques for Ionosphere Monitoring and Forecasting Using Ground-based and Spaceborne GNSS Measurements. November 2025.
2. International Conference on GPS Radio Occultation: Earth Surface Monitoring Using Grazing Angle GNSS Reflectometry. October 2025.
3. URSI AP-RASC General Lecture: Filling the Void in Ionosphere and Space Weather Monitoring with Unconventional GNSS Data. August 2025.
4. AGU: Advancing Ground and Space-based GNSS Observation Techniques for Ionosphere Monitoring. December 2024.
5. NASEM: Rebuilding the U.S Geodesy Workforce - A Meeting of Experts, Invited Presentation: National Space-Based Positioning, Navigation, and Timing Advisory Board Education & Science Innovation Subcommittee Report. Washington DC. December 2024.
6. International GNSS Conference Keynote Presentation: Machine Learning for GNSS Remote Sensing Applications, Sydney, Australia. February 2024.
7. AGU: Opportunities and Challenges in Using Spaceborne GNSS-R Measurements for Ionosphere Monitoring. December 2023.
8. Hong Kong Chinese University: Spaceborne GNSS-R For Remote Sensing of the Ionosphere, Atmosphere, Oceans, and Inland Water Bodies. November 2023.

9. National Cheng Kung University: Precision GNSS-R applications. November 2023.
10. International Conference on GPS Radio Occultation (ICGPSRO): GNSS-R for Ionosphere Remote Sensing, November 2023.
11. Taiwan International Assembly of Space Science, Technology, and Industry (TASTI): GNSS As Signals-of-Opportunity for Ionosphere, Atmosphere, Earth Surface Remote Sensing, November 2023.
12. East African Capacity Building Workshop on Space Weather and Low Latitude Ionosphere: GNSS Reflectometry For Ionospheric Observation, October 2023.
13. African Geophysical Society: GNSS As Signals-of-Opportunity for Ionosphere, Atmosphere, Ocean Surface, and Land Cover Remote Sensing, September 2023.
14. ION GNSS+ Conference Beyond GNSS Panel: Ionosphere Scintillation Effects on LEO Systems, September 2023.
15. URSI General Assembly Invited Presentation: Turning nuisances in satellite navigation into signals-of-opportunity for remote sensing of ionosphere, troposphere, and Earth surface, August 2023.
16. InsideGNSS Magazine Webinar: Space Weather Effects on GNSS, June 2023.
17. University in Zürich: GNSS As Signals-of-Opportunity for Ionosphere, Atmosphere, and Earth Surface Remote Sensing. May 2023.
18. Penn State: GNSS As Signals-of-Opportunity for Ionosphere, Atmosphere, and Earth Surface Remote Sensing. March 2023.
19. Beason Satellite Symposium Invited Presentation: Polar Ionosphere Research at University of Colorado Boulder Satellite Navigation and Sensing Lab, Aug. 2022.
20. IEEE Distinguished Lecturer: GNSS as Signals-of-Opportunity for Ionosphere, Atmosphere, Ocean Surface, and Land Cover Remote Sensing, Jul. 2022.
21. Keynote, First Workshop on GNSS Data Science: Machine Learning Techniques for Ground-based and Spaceborne GNSS Remote Sensing Applications – Lessons learned and Progresses Made, Potsdam, Germany, Jun. 2022.
22. PIERS Invited Presentation: GNSS-R for High Precision Altimetry Applications, Apr. 2022.
23. NAVITEC Invited Presentation: Carrier Phase-Based Spaceborne GNSS-R Applications, Apr. 2022.
24. AGU Invited Presentation: High Latitude Ionospheric TEC and Disturbance Observations from Spire Global CubeSat GNSS Reflection Signal Carrier Phase Measurements, Dec. 2021.
25. AGU Invited Presentation: Spire Global Coherent GNSS Reflectometry Measurements for High Precision Applications, Dec. 2021.
26. IEEE International Conference on Signal Processing and Aerospace Processing (INCAS) Invited Presentation: Satellite Navigation and Sensing, Nov. 2021.
27. Aerospace Corporation Invited Presentation: GNSS Carrier Phase Tracking and Applications under Challenging Conditions, July 2021.
28. NOAA Invited Presentation: Low Elevation Multi-GNSS Signal Processing for Remote Sensing Applications, June 2021.
29. JPL Invited Presentation: A Leap of Phase – Recent Progress in High Precision GNSS-R Development and Applications, May 2021.
30. Chinese Satellite Navigation Conference Invited Presentation: GNSS as Signals-of-Opportunity for Remote Sensing of Ionosphere, Troposphere, and Earth Surface, May 2021.
31. Space Weather Workshop Invited Presentation: Ionosphere Impact on GNSS, Jan. 2021.
32. Institute of Navigation Webinar: Automatic Detection of Ionospheric Scintillation-like GNSS Satellite Oscillator Anomaly Using A Machine-Learning Algorithm, Dec. 2020.
33. IEEE AES Distinguished Lecture: GPS As Signals-of-Opportunity for Ionosphere, Atmosphere, Ocean Surface, and Land Cover Remote Sensing, Virtual Lecture, Dec. 2020.
34. TREASURE Conference Invited Presentation: GNSS Carrier Cycle Slips: Causes, Detection and Mitigation, Virtual, Oct. 2020.

35. European Navigation Conference Invited Presentation: Expected and unexpected findings in mining massive GNSS data for ionospheric effects, Virtual, Nov. 2020.
36. IEEE International Geoscience and Remote Sensing Symposium (IGARSS) Invited Presentation: Coherent GNSS Reflection Signal Processing, Virtual, October 2020.
37. Zonta District 12, Amelia Earhart Event: Navigating Beyond Borders with GPS, Feb. 2020.
38. IEEE AESS Distinguished Lecture: Satellite Navigation and Sensing, Singapore, January 2020.
39. International Navigation Conference, Keynote presentation: Satellite Navigation and Sensing – A Match Made in Heaven, Edinburgh, UK, 2019.
40. AFOSR Research Highlight Presentation: Satellite Navigation and Sensing – A Match Made in Heaven, Washington DC, November 2019.
41. Stanford PNT Symposium: Synergy between Satellite Navigation and Remote Sensing, Palo Alto, CA, October 2019.
42. NASA Living With A Star Institute: Ionospheric Effects, Impacts, and Mitigation, Jackson, WY, October 2019.
43. Workshop on Ionospheric Forecasting for GNSS Operations in Developing Countries - Findings and Challenges Keynote Presentation: GNSS for ionosphere and scintillation monitoring, Trieste, Italy, May 2019.
44. Nanyang Technological University: Advanced GNSS Receiver Technologies for Radio Occultation Signals Propagating through Ionosphere and Troposphere Structure, Singapore, January 2019.
45. Joint GEM-CEDAR Workshop Science Highlight: GNSS Data Processing Techniques for Ionosphere Monitoring. Santa Fe, NM, June 2018.
46. URSI Atlantic Radio Science Meeting Invited Presentation: Scintillation Monitoring and Analysis Using Multi-Frequency GNSS Measurements, Gran Canarias, May 2018.
47. Politecnico di Torino, Natural and Artificial Threats to GNSS Workshop, Keynote Presentation: Satellite Navigation and Sensing – A Match Made in Heaven, Torino, Italy, May 2018.
48. Future Engineering and Global Women’s Symposium Invited Presentation: A Better Future Created by Engineering – Ethical Implications of Scientific and Engineering Advances, Changsha, China, April 2018.
49. URSI National Radio Science Meeting, Plenary Presentation: Radio Navigation Systems – New Challenges and Opportunities, Boulder, CO, January 2018.
50. International Technical Symposium on Navigation and Timing, keynote presentation: Satellite Navigation and Ionosphere Monitoring – Turning a Threat into Signals-of-Opportunity, Toulouse, France, November 2017.
51. URSI General Assembly Invited Presentation: Advances in Ionospheric Remote Sensing Using New GNSS Signals. Montreal, Canada, August 2017.
52. Science Highlight Presentation at NSF Coupling, Energetics, and Dynamics of Atmospheric Regions (CEDAR) Workshop: GNSS for Ionosphere Remote Sensing. Santa Fe, NM, June 2016.
53. American Geophysical Union (AGU) Meeting Invited Presentation: Multi-GNSS for Space Weather Monitoring and Forecasting. San Francisco, CA. December 2015.
54. International Symposium on Equatorial Aeronomy Invited Presentation: Longitudinal Dependence of Equatorial Ionospheric Effects Based on an Event-Driven Multi-GNSS Data Collection System. Bahir Dar, Ethiopia. October 2015.
55. NAECOM Keynote Presentation: Sensing and Navigation Using Global Navigation Satellite Systems Signals. Dayton, OH, July 2014.
56. White House Office for Science and Technology Auroral Workshop: Research and Education on Global Navigation Satellite Signals (GNSS) using HAARP. Washington DC, January 2014.
57. National Academy of Science: Overview of Basic Issues Related to Ionospheric Modification: GNSS Scintillation. Washington DC, May 2013.
58. Plenary Presentation at the Chinese Satellite Navigation Conference: Global Navigation Satellite Signals for Space Weather Research. Wuhan, China, May 2013.

59. New GNSS Algorithms and Techniques for Earth Observations Workshop Invited Presentation: How GNSS Signal Processing Alters Signal Parameters: A Cautionary Tale in Using GNSS for Remote Sensing Applications. Hong Kong, May 2012.
60. Miami University Sigma Xi Researcher of the Year Presentation: The Global Positioning System - Past, Present, and Future. Oxford, OH, Sep. 2009.

JOURNAL PUBLICATIONS (Students, post-docs, and research staff names are italicized)

- J1. Evans, M. C., Breitsch, B., & Morton, Y. J. (2026). Assessment of ionospheric TEC estimation uncertainty using single-frequency wideband low-elevation GNSS signals. NAVIGATION. DOI:10.33012/navi.737.*
- J2. Morton, Y.J., Bourne, H., Taylor S., & Yang, C. (2026). Ionospheric effects on VHF signals transmitted from a LEO satellite. NAVIGATION, 73. DOI:10.33012/navi.743.*
- J3. Scott, M., Putnam, A., Shah, R., David, C. H., Minear, J. T., Roesler, C., Morton, Y. J. (2026). High precision altimetry using spaceborne grazing angle GNSS-reflectometry over Tonle Sap Lake. IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens., DOI: 10.1109/JSTARS.2026.3662584.*
- J4. Anderson, S., Wang, Y., Morton, Y. J. (2025). Relating GNSS reflected signal coherence to ice shelf surface deformation and roughness, IEEE Trans. Geosci. Remote Sens., DOI:10.1109/TGRS.2025.3538558.*
- J5. Breitsch, B., Morton, Y. J. (2025). Estimation of GNSS code multipath and measurement biases for LEO multi-antenna receivers, IEEE Trans. Geosci. Remote Sen. DOI:10.1109/TGRS.2025.3631496.*
- J6. Chang, H., Morton, Y. J., Dittmann S. T. (2025). Assessment of scintillation data from PlanetIQ and Spire Global radio occultation missions, J. Geophys. Res. Space Physics. DOI:10.1029/2024JA033543.*
- J7. Chang, H., Morton, Y. J., Brandmeyer, J., Themens, D. R. (2025). Analysis of ionospheric response to the May 2024 geomagnetic superstorm using commercial radio occultation satellites and ground-based instruments. J. Geophys. Res. Space Physics. DOI:10.1029/2025JA034517.*
- J8. Cheng, P-H., Morton, Y. J. (2025). Observation of large-scale traveling ionospheric disturbances in the topside ionosphere using POD TEC from multiple LEO satellites constellations, J. Geophys. Res. Space Physics. DOI:10.1029/2024JA033293.*
- J9. Sonth, N., Morton, J., Scott, L. (2025). Comprehensive assessment of tropospheric effects over a wide range of frequencies transmitted from LEO satellites. Navigation. DOI:10.33012/navi.725.*
- J10. Rino, C., Carrano, C., Vasylyev, D., Beach, T., Morton, Y., Breitsch, B., Groves, K. (2025). On phase screen models for scintillation diagnostics. Radio Sci., DOI:10.1029/2024RS008204. (SSRN's Top Downloads for Plasma Physics eJournal in December 2025).*
- J11. Roesler, C., Morton, Y. J. (2025). Retrieving atmospheric water vapor content from grazing angle GNSS reflectometry measurements: methodology and performance assessment. IEEE Trans. Geosci. Remote Sensing, DOI: 10.1109/TGRS.2025.3630555.*
- J12. Royersmith, B., Knipp, D., Starr, G., Morton, Y. J., Mrak, S., Wu, Q. (2025). Robust global analysis of mid-latitude ionospheric trough morphology, J. Geophys. Res. Space Physics. DOI:10.1029/2024JA033605.*
- J13. Wang, Y., Morton, Y. J., Minear, J. T., Putnam, A., Conrad, A., Axelrad, P., Nerem, R. S., Warnock, A., Ruf, C., Moreira, D. M., Talpe, M. (2025). Measuring river slope using spaceborne GNSS reflectometry: methodology and performance assessment. Remote Sensing of Environment, DOI:10.1016/j.rse.2025.114597.*
- J14. Younas, W., Nishimura, Y., Liao, W., Semeter, J., Mrak, S., Morton, Y. J., Groves, K. M. (2025). Spatio-temporal evolution of mid-latitude GPS scintillation and position errors during the May 2024 solar storm. J. Geophys. Res. Space Physics. DOI:10.1029/2025JA033839.*

- J15. Xu, J., Yang, R., Morton, Y. J., Zhan X. (2025). GNSS multipath detection using normalized early prompt late area method in correlation domain. *IEEE Trans. Aero. Elec. Sys.*, [DOI:10.1109/TAES.2025.3611943](https://doi.org/10.1109/TAES.2025.3611943).
- J16. Yang, Z., Morton, Y. T. (2025). Impacts of the May 2024 extreme geomagnetic storm on global high-accuracy GPS positioning solutions. *Space Weather*, [DOI: 10.1029/2025SW004547](https://doi.org/10.1029/2025SW004547).
- J17. Smith, J., Kast, A., Geraschenko, A., Morton, Y. J., Brenner, M. P., van Diggelen, F., William, B. P. (2024). Mapping the ionosphere with millions of phones, *Nature*. [DOI:10.1038/s41586-024-08072-x](https://doi.org/10.1038/s41586-024-08072-x).
- J18. Chen, X., Morton, Y. J., Yu, W., Throung, T. -K. (2024). GNSS spoofer localization with counterfeit clock bias observables on a mobile platform. *IEEE Sensors*. [DOI: 10.1109/JSEN.2023.3310976](https://doi.org/10.1109/JSEN.2023.3310976).
- J19. Cheng, P.-H., Wang, Y., Liu, L., Morton, Y. T. (2024). Detection of traveling ionospheric disturbances triggered by 2022 Tonga volcanic eruptions through CubeSats coherent GNSS-Reflectometry measurement. *J. Geophys. Res., Space Physics*. [DOI:10.1029/2023JA032229](https://doi.org/10.1029/2023JA032229).
- J20. Miao, X., Yang, R., Fu, N., Zhan, X., Morton, Y. J. (2024). Dynamic characterization of equatorial plasma bubble based on triangle network-joint slope approach. *J. Geophys. Res., Space Physics*. [DOI:10.1029/2024JA032912](https://doi.org/10.1029/2024JA032912).
- J21. Yang, Z., Morton, Y. T. (2024). Time-lagged effects of ionospheric response to severe geomagnetic storms on GNSS kinematic precise positioning. *Space Weather*, [DOI:10.1029/2024SW003946](https://doi.org/10.1029/2024SW003946), 2024.
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