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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

EMPLOYMENT

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

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 AFFILIATIONS AND SERVICES

- Affiliations and Membership
 - American Geophysical Union (AGU)
 - Institute of Electrical and Electronics Engineering (IEEE), Fellow (2014)
 - * IEEE Aerospace and Electronics Systems Society
 - * IEEE Microwave Theory and Techniques Society
 - * IEEE Signal Processing Society
 - * IEEE Women in Engineering Society
 - Institute of Navigation (ION), Fellow (2014)
 - International Union of Radio Science (URSI)
- Offices Held
 - ION Satellite Division Executive Committee (2010-2016)
 - ION Pacific Rim Collaboration Committee Liaison (2014-16)
 - Chair, ION GNSS+ Student Paper Award Committee (2014-16)
 - Chair, ION Satellite Division (2012-14)
 - Technical Committee Member, IEEE MTT Soc., Digital Signal Proc. Subgroup (2004-14)
 - Vice Chair, ION Satellite Division (2010-12)
 - Eastern Region Member-at-Large, ION (2012, 2009)
 - President, CPGPS (2011)
 - Election Committee Chair, CPGPS (2010)
 - Vice President, CPGPS (2010)
 - Chair, ION Outreach (2010-2012)
 - Chair, Brad Parkinson Thesis Award Committee, ION (2008)
 - Chair, Award Committee, New Navigation Tech.& Innovations Conf., Beijing, China (2008)
 - Member, ION Council (since 2006)
 - Chair, ION Dayton Section (2006-7)

- Conference Organization
 - Program Co-Chair, 2017 ION Pacific Position, Navigation, and Timing (PNT) Conference
 - Session Co-Chair, 2015 ION Global Navigation Satellite Systems+ Conference
 - Program Co-Chair, 2015 ION Pacific PNT Conference
 - Conference Committee, 2014 IEEE Radar Conference
 - Scientific Committee, 2014 Ubiquitous Positioning, Indoor Nav., & Location Based Services
 - Panel Co-Chair, 2014 Chinese Satellite Navigation Conference (CSNC), US-ION Panel
 - General Chair, 2013 ION Global Navigation Satellite Systems Conference
 - Panel Co-Chair, 2013 CSNC, US-ION Panel
 - Program Co-Chair, 2013 ION Pacific PNT Conference
 - Session Co-Chair, 2013 ION International Technical Meeting (ITM)
 - Program Committee, 2012 Int. Conf. Ubiquitous Pos., Indoor Nav., & Location Based Service
 - Program Chair, 2012 ION Global Navigation Satellite Systems Conference
 - Section Co-Chair, 2012 Chinese Satellite Navigation Conference
 - Panel Co-Chair, 2012 Chinese Satellite Navigation Conference US-ION Panel
 - General Chair, 2012 ION International Technical Meeting
 - Co-Chair, Compass Workshop, 2011 ION Global Navigation Satellite Systems Conference
 - Section Co-Chair, 2011 Chinese Satellite Navigation Conference
 - Program Chair, 2011 ION International Technical Meeting
 - Session Co-Chair, 2010 CPGPS International Technical Forum
 - Session Co-Chair, 2010 ION International Technical Meeting
 - Session Co-Chair, 2009 ION Global Navigation Satellite Systems Conference
 - Session Co-Chair, 2009 ION International Technical Meeting
 - Focused Session Organizer, Adv. in Positioning Sys., 2009 IEEE Int. Microwave Sym.
 - Session Co-Chair, 2008 ION National Technical Meeting (NTM)
 - Technical Track Chair, 2007 ION Global Navigation Satellite Systems Conference
 - Session Co-Chair, 2007 ION Annual Meeting (AM)
 - Session Co-Chair, 2007 ION National Technical Meeting
 - Session Co-Chair, 2006 ION National Technical Meeting
 - Workshop Co-Organizer, 2005 IEEE International Microwave Symposium
 - Workshop Organizer, 2005 AFOSR Communication & Navigation Program Review
 - Session Co-Chair, 2005 ION GNSS
 - Session Co-Chair, 2004 IEEE Position, Location, & Navigation System (PLANS) Conf.
 - Session Co-Chair, 2003 ION Annual Meeting
 - Session Chair, 2002 American Control Conference (ACC)
- Editorial services
 - Technical Editor, IEEE Trans. Aerospace & Electronics (Since 2014)
 - Associate Editor, IEEE Trans. Aerospace & Electronics (2008-2014)
 - Editorial board, Springer journal GPS Solutions (since 2006)
- Journal Publication Reviewer
 - IEEE Transactions on Signal Processing
 - IEEE Transactions on Aerospace & Electronics
 - IEEE Transactions on Wireless
 - Radio Science
 - GPS Solutions
 - EURASIP Journal on Advances in Signal Processing
 - Journal of Aircraft
 - Journal of Global Positioning Systems
 - Journal of Atmospheric and Solar-Terrestrial Physics
 - Communications Letters

- Geophysics Research Letters
- Journal of Navigation
- Proposal/Panel Reviewer
 - National Science Foundation
 - Air Force Office for Scientific Research
 - Air Force Research Laboratories
- Tutorial and short courses taught
 - COUNT Short Course: Ionospheric Scintillation and GNSS Receivers. Dayton, OH, 2015
 - Nanyang Technological University, Singapore, 2015, gave 2 tutorials:
 - Software GNSS Receiver Algorithms
 - Atmospheric Remote Sensing Using GNSS
 - US-Singapore PNT Workshop, Maui, HI, 2014, gave 3 tutorials:
 - Magnetic Field Modeling
 - Ionosphere Modeling
 - Introduction to Software-Defined Radio
 - Croucher Foundation: GNSS Software Receiver Algorithms & Applications. Hong Kong, 2014
 - COUNT Short Course: GNSS Remote Sensing. Dayton, OH, 2014
 - COUNT Short Course: GNSS and Space Weather. Dayton, OH, 2013
 - Rockwell Collins: High Sensitivity GNSS, Cedar Rapids, IW, 2012
 - ION GNSS: High Sensitivity GNSS. Nashville, TN, 2012
 - IEEE NAECON: High Sensitivity GNSS. Dayton, OH, 2012
 - COUNT Short Course: High Sensitivity GNSS Receivers. Dayton, OH, 2012
 - Honeywell: Ionospheric Scintillation. Minneapolis, MN, 2011
 - ION GNSS: High Sensitivity GNSS. Portland, OR, 2011
 - HAARP Summer Student Res. Campaign: Ionospheric Effects on GNSS. HAARP, AK, 2011
 - COUNT Short Course: Ionospheric Scintillation. Dayton, OH, 2011
 - AFOSR Singapore PNT Workshop, Honolulu, HI, gave 2 tutorials:
 - GPS 101
 - High Sensitivity GPS
 - Polar Aeronomy & Radio Sci. Workshop: Ionospheric Effects on GNSS. HAARP, AK, 2010
 - COUNT Short Course: Ionospheric Effects. Columbus, OH, 2010
 - African GNSS Outreach Workshop, Trieste, Italy, 2010, gave two tutorials
 - Autonomous Vehicle GNC
 - Robotics Laboratory
 - COUNT Short Course: Ionospheric Effects. Columbus, OH, 2009
 - HAARP Summer Student Res. Campaign: Ionospheric Effects on GPS. HAARP, AK, 2009
 - WPAFB AFRL Short Course: Software Receiver Technologies. WPAFB, OH, 2009
 - African GNSS Outreach Workshop, Trieste, Italy, 2009, gave two tutorials
 - Autonomous Vehicle GNC
 - Robotics Laboratory
 - Polar Aeronomy & Radio Sci. Workshop: Ionospheric Effects on GPS. HAARP, AK, 2008
 - IEEE National Aerospace & Electronics Conference: Software Receivers. Dayton, OH, 2008
 - WPAFB AFRL Short Course: Software Receiver Technologies. WPAFB, OH, 2008
 - COUNT Short Course: Software Receiver Technologies. Dayton, OH, 2008
 - COUNT Short Course: Software Receiver Technologies. Dayton, OH, 2007

SELECTED UNIVERSITY COMMITTEES AND SERVICES

- Miami University ECE Department Tenure and Promotion Committee, 2006-14
- Miami University School of Engineering & Applied Science Research Award Committee, 2013
- Miami University President 2020 Plan Target Goal Team member, 2012-13

- School of Engineering & Applied Science Curriculum Committee, 2012-13
- STEM First Abilities Outreach to high school female students, 2011-12
- School of Engineering & Applied Science Research Award Committee, 2011-12
- Sigma Xi Researcher of Year Award Committee, 2011-12
- Chair, ECE Scholarship Committee, 2011-12
- PNT Committee, Mechanical and Manufacturing Engineering, 2011-12
- Chair, Sigma Xi Researcher of Year Award Committee, 2011
- ABET Accreditation support, 2001-2011
- Panel member, Academic Success Workshop for International Students, 2010, 2011
- Society of Woman Engineers Advisor, 2008-2010
- Mentor, Talawanda High School Robotics Competition Team, 2008-2010
- Chair, Faculty Search Committee, 2004-5, 2008-9
- Undergraduate Curriculum Committee member, 2004-5, 2008-9
- Search committee member, Vice President for Institutional Diversity, 2007
- School of Engineering & Applied Science Administrator Evaluation Committee, 2006-7
- School of Engineering & Applied Science Research Award Committee, 2005-7, 2009
- School of Engineering & Applied Science Research Council member, 2005-7
- Chair, ECE Undergraduate Curriculum Committee, 2005-6
- Search Committee member, Associate Provost and Dean of Graduate School, 2005-6
- ECE Program Director Search Committee member, 2004-5
- Search Committee, Assistant to the President and Associate Provost for Diversity, 2004-5
- Faculty Search Committee member, 2000-2007
- New ECE Programs Undergraduate Curriculum Committee, 2001-2
- Principle Investigator of the Fusion Project, Miami University, 2001-2

AWARDS AND HONORS

- GPS World Leadership Award, GPS World Magazine, 2015
- Best session presentation, ION GNSS Conference, 2004, 2007, 2011, 2014, 2015
- Fellow, IEEE, 2014
- Fellow, Institute of Navigation (ION), 2014
- Tan Chin Tuan Faculty Fellow, Nanyang Technological University, Singapore, 2014
- Advisor, 1st place team, Best paper, and Best presentation award, ION Autonomous Snowplow Competition, 2014
- Thurlow Award, ION, 2013
- Distinguished Scholar Award, Miami University, 2013
- Woman's Leadership Award, Miami University, 2013
- Jennie Elder Suel Distinguished Woman of Color Award, Miami University, 2013
- Co-author, best paper, Colloquium Sci. Fundamental Aspects Galileo Prog., 2013
- Advisor, 5th place Design Award, Intelligent Ground Vehicle Competition, 2013
- Advisor, 2nd place, ION Autonomous Snowplow Competition, 2013
- Co-author, Best track paper, IEEE/ION PLANS Conference, 2012
- Finalist, Outstanding Professor Award, Associated Student Government, Miami Univ., 2012
- Advisor, 2nd place, ION Autonomous Lawnmower Competition, 2012
- Advisor, 2nd place, ION Autonomous Snowplow Competition, 2012
- Advisor, 1st place, Miami U. Interdisciplinary Tech. Dev. Competition (MUITDC), 2012
- Co-advisor, 2nd place, Int. Waveform Diversity & Design Conf. Student Paper Competition, 2012
- Co-author, Best paper, IEEE NAECON, 2011
- Outstanding Researcher Award, School of Engineering & Applied Sci., Miami U., 2005, 2011

- Outstanding Professor Nominee, Associated Student Government, Miami U., 2004, 2006, 2011
- Co-advisor, 1st place, MUITDC, 2011
- Advisor, 2nd place, ION Autonomous Snowplow Competition, 2011
- Advisor, 2nd place, ION MiniUrban Challenge Ohio Competition, 2010
- Advisor, 1st place, ION MiniUrban Challenge Ohio Competition, 2009
- Sigma Xi Researcher of the Year Award, Miami U., 2009
- Teaching Excellence award, School of Engineering & Applied Sci., Miami U., 2007
- Advisor, Best student paper award, CPGPS, 2007
- Teaching Effective Award Nominee, Miami University Alumni Association, 2006, 2007
- Shoupp Award, Miami University Research Advisory Council, 2001, 2006
- Charles Ryan Award Nominee, AFRL, WPAFB, 2005
- Teaching Excellence Award, Committee for Enhancement of Learning, Miami Univ., 2005
- Advisor, 2nd place, ION Autonomous Lawnmower Competition, 2004
- Advisor, Best Production Plan, ION Autonomous Lawnmower Competition, 2004
- National Research Council/AFOSR Summer Faculty Fellowship Award, 2002, 2003, 2004
- First place, Annual Graduate Research Exhibition, Penn State University, 1990

SELECTED RESEARCH PROJECTS

- AFOSR:
 1. High latitude ionospheric scintillation studies using multi-constellation multi-band software GNSS receivers. \$396K. 2014-2017.
 2. Developing satellite signal parameter estimation algorithms for high-accuracy applications. \$650K. 2010-13.
 3. Precise GPS signal tracking in interference and multipath environment using a multi-channel software receiver. \$288K. 2008-10. (Co-PI)
 4. Three-frequency based high precision GPS receiver for navigation applications. \$285K. 2007-10.
 5. DURIP: A multi-channel dual frequency radio frequency front end for anti-jamming software GPS receiver research. \$223K. 2007-8.
 6. Integrated reconfigurable aperture, digital beam forming, and software GPS receiver for UAV navigation. \$263K. 2004-2007.
 7. Developing signal processing algorithms for weak GPS signal acquisition in urban environment. \$50K. 2003-4.
- AFRL:
 1. Advanced Novel Spectrum Warfare Environment Research. \$1.266M. 2015-2019.
 2. Software-defined multi-functional LPI/LPD adaptive radar for network-centric applications. \$255K. 2015-2018. (Co-I)
 3. Collaborative research and development program on navigation and time-keeping with AFRL/RYRN. \$802K. 2008-15.
 4. Adaptive radar imaging with knowledge-based SAR. \$29K. 2012-13. (Co-PI)
 5. LADAR EO GPS/INS Atomic Clock Navigation Demonstration and Worldwide Accurate Sensor Positioning System technical support. \$120K. 2007-8.
 6. An integrated spatial digital beam forming and adaptive periodogram technique for interference and jamming cancellation. \$15K. 2006.
 7. Integrated navigation reference systems for micro-UAV information applications. \$65K. 2005-6.
 8. Algorithm development for GPS interference cancellation. \$10K. 2002.
- AOARD:

1. Determination of precise satellite orbital position using multi-band GNSS signals. \$100K. 2015-2017. (Co-I)
- Consortium of Ohio Universities on Navigation and Timekeeping (COUNT):
 1. Industrial Affiliates Support. \$165K. 2007-2015.
 - Dayton Area Graduate Studies Institute:
 1. Multi-domain analysis of GNSS signals. \$43.5K. 2013-14.
 2. Space weather effects on GNSS. \$43.5K. 2013-14.
 3. Physics-Based Modeling of Sensor Environment. \$43.5K. 2013-14. (Co-PI)
 4. Advanced GPS receiver algorithms for assured navigation. \$80K. 2011-13.
 5. Cognitive radar for autonomous systems. \$95K. 2011-13. (Co-PI)
 6. High accuracy GPS receiver algorithms for navigation. \$73K. 2008-10.
 7. Multi-channel RF receiver/exciter systems. \$59K. 2006-7.
 8. Intelligent sensing and control for autonomous vehicles. \$43K. 2005-6.
 - NASA:
 1. Multi-GNSS radio occultation algorithms development for ionosphere irregularity studies with augmentation from ground-based GNSS networks. \$525K. 2015-19.
 - NSF:
 1. MRI: Acquisition of multi-constellation GNSS data collection arrays for low latitude ionospheric effects studies. \$253K. 2014-17.
 2. A study on the circulation and structure of metallic ions in the mid-latitude ionosphere. \$342K. 2007-12. (Co-PI)
 3. Dual-beam incoherent scatter radar study of the mesosphere. \$210K. 2003-6. (Co-PI)

INVITED PRESENTATIONS:

- [1] American Geophysical Union (AGU) Meeting: Multi-GNSS for Space Weather Monitoring and Forecasting. San Francisco, CA. December 2015.
- [2] ION Southern California Section: Multi-GNSS for Distributed Atmospheric Remote Sensing. Los Angeles, CA. November 2015.
- [3] International Symposium on Equatorial Aeronomy: Longitudinal Dependence of Equatorial Ionospheric Effects Based on an Event-Driven Multi-GNSS Data Collection System. Bahir Dar, Ethiopia. October 2015.
- [4] Couple, Energetics, and Dynamics of Atmospheric Regions (CEDAR) Workshop: Comparative Characteristics of Equatorial Scintillation Based on Measurements from Jicamaca, Hong Kong, Singapore, Alaska, and Ascension Island. Seattle, WA. June 2015.
- [5] UNAVCO: Multi-GNSS for Ionospheric Monitoring. Boulder, CO. June 2015.
- [6] Ionospheric Effects Symposium: High-latitude and Equatorial Ionospheric Scintillation Based on an Event-Driven Multi-GNSS Data Collection System. Alexandria, VA. May 2015.
- [7] Colorado State University College of Engineering: Global Navigation Satellite Signals for Space Weather Monitoring. Fort Collins, CO, May 2015.
- [8] Singapore DSO: Software Defined GNSS Receivers for Atmospheric Remote Sensing. Singapore, January 2015.
- [9] Jet Propulsion Laboratory: Challenges and Opportunities in Using GNSS for Ionosphere Monitoring. Pasadena, CA, September 2014.
- [10] The International Union of Radio Science (URSI) General Assembly and Scientific Symposium (GASS): Multi-constellation GNSS observations of equatorial ionospheric scintillation. Beijing, China, August 2014.
- [11] NAECOM Keynote Presentation: Sensing and Navigation Using Global Navigation Satellite Systems Signals. Dayton, OH, July 2014.

- [12] The 20th Annual RF Ionospheric Interactions Workshop: GNSS: A diagnostics tool for ionosphere modification effects. Arecibo Observatory, Puerto Rico, April 2014.
- [13] Arecibo Observatory Seminar: Challenges and opportunities of GNSS in ionosphere measurements. Arecibo Observatory, Puerto Rico, April 2014.
- [14] White House Office for Science and Technology Auroral Workshop: Research and education on Global Navigation Satellite Signals (GNSS) using HAARP. Washington DC, January 2014.
- [15] The International Union of Radio Science (URSI) National Radio Science Meeting: Multi-constellation multi-frequency GNSS scintillation. Boulder, CO, January 2014.
- [16] Stanford University PNT Symposium: International monitoring of ionosphere. Palo Alto, CA, November 2013.
- [17] National Academy of Science: Overview of basic issues related to ionospheric modification: GNSS scintillation. Washington DC, May 2013.
- [18] NOAA: Satellite Navigation Signals for Ionospheric Remote Sensing Applications. Washington DC, May 2013.
- [19] Chinese Satellite Navigation Conference: Global Navigation Satellite Signals for Space Weather Research. Plenary presentation, Wuhan, China, May 2013.
- [20] Colorado State University: Global Navigation Satellite Systems and Ionospheric Remote Sensing. Fort Collins, CO, April 2013.
- [21] The Ohio State University: GNSS for Space Weather Studies. Columbus, OH, Feb. 2013.
- [22] American Geophysical Union (AGU) Meeting: Characteristics of High Latitude Ionosphere Scintillations. San Francisco, CA, Dec. 2012.
- [23] Stanford University: Ionosphere scintillation: measurement and analysis, Palo Alto, CA, Dec. 2012.
- [24] Jicamarca Radio Observatory: Ionosphere effects on GNSS. Apartado, Peru, Nov. 2012.
- [25] Illinois Institute of Technology: Ionosphere scintillation of GNSS signals. Chicago, IL, Oct. 2012.
- [26] Polar Aeronomy and Radio Science Workshop: "GPS research at HAARP. Aug. 2012.
- [27] AFRL/RYP: GPS Multipath: A nuisance or a signal of opportunity?" WPAFB, July 2012.
- [28] Coupling, Energetics, and Dynamics of Atmospheric Regions (CEDAR) Workshop: Time-frequency analysis of GPS scintillations at HAARP. Santa Fe, June, 2012.
- [29] New GNSS Algorithms and Techniques for Earth Observations Workshop: How GNSS signal processing alters signal parameters; a cautionary tale in using GNSS for remote sensing applications. Hong Kong, May 2012.
- [30] Ionosphere Interactions Workshop: Capturing GNSS scintillations at HAARP. Santa Fe, NM, April 2012.
- [31] Nanyang Technical University: Ionosphere Scintillation of GNSS Signals. Singapore, March 2012.
- [32] Hong Kong Polytechnic University: GNSS Research at Miami University. Hong Kong, January 2012.
- [33] ION North Star Section: Ionosphere Effects and other GNSS and RF Navigation Research at Miami. November 2011.
- [34] CEDAR Workshop: Multiband GNSS Scintillation. Santa Fe, NM, June 2011.
- [35] AFOSR Program Review: Ionosphere Scintillation Effects on GNSS Receivers. Eglin AFB, June 2011.
- [36] Chinese Satellite Navigation Conference: GNSS Receivers for Ionosphere Scintillation Studies. Shanghai, China, May 2011.
- [37] Miami University Farmer Business School: Chinese Science and Technology: History, Recent Development, and Future Outlook. Oxford, OH, Feb. 2011.
- [38] AFOSR Singapore PNT Workshop: Ionosphere Effects. Honolulu, Hawaii, Dec. 2010.
- [39] Washington University: A GPS Multipath Estimation and Mitigation Technique for High Accuracy Applications. St. Louis, MO, Oct. 2010.
- [40] AFRL Next Generation Radar Workshop: Overview of Miami University Current Radar/Navigation Research Efforts. Dayton, Aug. 2010.

- [41] CEDAR Workshop: GPS Receivers Measurements of L-Band Ionosphere Scintillations at HAARP, AK. Boulder, CO, June 2010.
- [42] AFOSR Program Review: GPS Multipath Detection/Estimation/Mitigation Using Multi-Channel Software Receivers. Waltham, MA, Jun. 2010.
- [43] International Antarctic Science Workshop: Arctic GPS. Albany, NY, May 2010.
- [44] Virginia Tech: Ionosphere Effect on GPS Measurements and GPS Receiver Algorithms for High Accuracy Applications. Blacksburg, VA, Dec. 2009.
- [45] Miami University Sigma Xi Researcher of the Year Presentation: The Global Positioning System: Past, Present, and Future. Oxford, OH, Sep. 2009.
- [46] Johns Hopkins University Applied Physics Research Laboratory: Higher Order Ionosphere Error in GPS Measurements. Laurel, MD, Aug. 2009.
- [47] University of Calgary: GPS Self-Interference and Mitigation. Calgary, Canada, Jun. 2009.
- [48] Istituto Superiore Mario Boella: Recent Position, Location, and Navigation Research Activities at Miami University. Torino, Italy, Apr. 2009.
- [49] Miami University SEAS 50th Anniversary: Position, Location, and Navigation – Anywhere, Anytime. Oxford, OH, Apr. 2009.
- [50] Stanford University: Navigation Research at Miami. Palo Alto, CA, May 2008.
- [51] NAVAIR: Second Order Ionosphere Error Assessment and Low Power Short Delay Multipath Detection. Patuxent River, MD, May 2008.
- [52] ION Dayton Section, Dayton: High Order Ionosphere Error. OH, Mar. 2008.
- [53] IEEE IMS Workshop on Quality of Automotive RF Systems: Evaluation of GPS receivers. San Francisco, CA, Jun. 2006.
- [54] Department of Mathematics, Miami University: Some Applied Mathematical Problems in Navigation. Oxford, OH, Apr. 2006.
- [55] Pi Mu Epsilon National Mathematics Society Miami Chapter: Integrating Digital Beam Forming and Software Receivers for UAV Application. Oxford, OH, Sept. 2005.
- [56] Nanjing University: Software GPS Receiver. Nanjing, China, June 2005.
- [57] IEEE IMS Workshop on Software Defined Radio: Integrating Beam Forming and A Software GPS Receiver. Long Beach, CA, Jun. 2005.
- [58] Miami University Research Advisory Council: Software-Based Global Positioning Systems Receiver and Applications. Oxford, OH, Apr. 2005.
- [59] ECE Distinguished Speaker Seminar Series, Illinois Institute of Technology: Software GPS Receivers and Applications. Chicago, IL, Dec. 2004.
- [60] IEEE Cincinnati Chapter: The Miami Red Blade: An Autonomous Lawn Mower. Cincinnati, OH, Oct. 2004.
- [61] Embry Riddle Aeronautics University: Software GPS Receiver. Daytona Beach, FL., Feb. 2003.
- [62] Embry Riddle Aeronautics University: Modeling and Measurements of the Upper Atmosphere Electron Density Irregularities. Daytona Beach, FL., Feb. 2003.

PUBLICATONS (*Students, post-docs, and research staff names are italicized*)

Journal/Magazine Papers by Areas:

GNSS Receivers and Signal Processing

- [J1] *Yin, H., Y. Morton, M. Carroll, E. Vinande*, “Performance analysis of L2 and L5 CNAV broadcast ephemeris for orbit calculation,” *NAVIGATION*, 62(2), 121-140, Summer 2015.
- [J2] *Liu, X., M. Liang, Y. Morton, P. Closas, T. Zhang, and Z. Hong*, “Performance evaluation of MSK and OFDM modulations for future GNSS signals,” *GPS Solutions*, doi 10.1007/s10291-01400368-6, 1-13, 2014.
- [J3] *Kou, Y., Y. Morton*, “Oscillator frequency offset impact on software GPS receivers and correction algorithms,” *IEEE Trans. Aero. Elec. Sys.*, 49(4), 2158-2178, 2013.

- [J4] Chen, X., Y. Morton, F. Doyis, “A computationally efficient iterative MLE for GPS AOA estimation,” *IEEE Trans. Aero. Elec. Sys.*, 49(4), 2707-2716, 2013.
- [J5] Chen, X., F. Doyis, S. Peng, Y. Morton, “Comparative studies of GPS multipath mitigation methods performance,” *IEEE Trans. Aero. Elec. Sys.*, 49(3), 1555-1568, 2013.
- [J6] Zhang, L., Y. Morton, “GPS carrier phase spectrum estimation for ionospheric scintillation studies,” *NAVIGATION, J. Institute of Navigation, Vol. 60, No. 2, p113-122, Summer 2013.*
- [J7] Peng, S., Y. Morton, “A USRP2-based reconfigurable multi-constellation multi-frequency GNSS software receiver front end,” *GPS Solutions*, DOI: 10.1007/s10291-012-0263-y, 2012.
- [J8] Brenneman, M., Y. Morton, “Functional bandwidth criterion for adaptive array performance,” *IEEE Trans. Aero. Elec. Sys.*, 46(3), 1226-1235, 2010.
- [J9] Brenneman, M., Y. Morton, Q. Zhou, “GPS multipath detection with ANOVA for adaptive arrays,” *IEEE Trans. Aero. Elec. Sys.*, 46(3), 1171-1185, 2010.
- [J10] Brenneman, M., Y. Morton, “False alarm rate estimation for information-theoretic-based source enumeration methods,” *EURASIP J. Adv. Signal Processing*, Article ID 697451, 10 pages, 2009. doi:10.1155/2009/697451, 2009.
- [J11] Morton, Y., M. Miller, J. Tsui, D. Lin, Q. Zhou, “GPS civil signal self-interference mitigation during weak signal acquisition,” *IEEE Trans. Signal Processing*, 55(12), 5859-5893, 2007.
- [J12] Morton, J., “Software receivers will define future development,” *GPS World*, Aug. 2007.
- [J13] Morton, Y., M. French, Q. Zhou, J. Tsui, D. Lin, M. Miller, D. Jennings, “A software approach to access ultra-wide band interference on GPS receivers,” *IEEE Trans. Aero. & Elec. Magazine*, 20(1), 28-33, 2005.
- [J14] Morton, J., “Software GNSS receiver explained,” *GPS World*, p153-240, Apr.2007.

Ionosphere

- [J1] Wang, J., Y. Morton, “High latitude ionospheric irregularity drift velocity estimation using spaced GPS receiver carrier phase time-frequency analysis,” *IEEE Trans. Geosci. Remote Sensing*, 53(11), 6099-6113, doi:10.1109/TGRS.2015.2432014, 2015.
- [J2] Jiao, Y., Y. Morton, “Comparison of the effects of high-latitude and equatorial ionospheric scintillation on GPS signals during the maximum of solar cycle 24,” *Radio Sci.*, 50(9), 886-903, 10.1002/2015RS005719, 2015.
- [J3] Najmi, A., G. Milikh, Y. M. Yampolski, A. V. Koloskov, A. A. Sopin, A. Zalizovski, P. Pernhardt, S. Briczinski, C. Siefring, K. Chiang, Y. Morton, S. Taylor, A. Mahmoudian, W. Bristow, M. Rohoniemi, and K. Kapadopoulos, “Studies of the ionospheric turbulence excited by the fourth gyroharmonic at HAARP,” *J. Geophys. Res., Space Sci.*, 120(8), 6646-6660, 2015.
- [J4] Prikryl, P., R. Ghoddousi-Fard, E. G. Thomas, J. M. Ruohoniemi, S. G. Shepherd, P. T. Jayachandran, D. W. Danskin, E. Spanswick, Y. Zhang, Y. Jiao, Y. T. Morton, “GPS phase scintillation at high latitudes during geomagnetic storms of 7-17 March 2012 – Part 1: The North American sector,” *Ann. Geophys.*, 33(6), 637-656, 2015.
- [J5] Prikryl, P., R. Ghoddousi-Fard, L. Spogli, C. N. Mitchell, G. Li, B. Ning, P. J. Cilliers, V. Sreeja, M. Aquino, M. Terkildsen, P. T. Jayachandran, Y. Jiao, Y. T. Morton, J. M. Ruohoniemi, E. G. Thomas, Y. Zhang, A. T. Weatherwax, L. Alfonsi, G. De Franceschi³ V. Romano, “GPS phase scintillation at high latitudes during geomagnetic storms of 7-17 March 2012 – Part 2: Interhemispheric comparison,” *Ann. Geophys.*, doi: 10.1002/2015JA021341, 2015.
- [J1] Jiao, Y., Y. Morton, S. Taylor, W. Pelgrum, “Scintillating Statistics,” *GPS World*, Oct. 2014.
- [J2] Park, J., D. Grejner-Brzezinska, R. von Frese, Y. Morton, “GPS discrimination of traveling ionospheric disturbances from underground nuclear explosions and earthquakes,” *NAVIGATION, J. Institute of Navigation*, 61(2), 125-134, 2014.
- [J3] Jiao, Y., Y. Morton, S. Taylor, W. Pelgrum, “Characterization of high latitude ionospheric scintillation of GPS signals,” *Radio Sci.*, 48, doi:10.1002/2013RS005259, 2013.

- [J4] Xu, R., Z. Liu, M. Li, Y. Morton, W. Chen, "An analysis of low-latitude ionospheric scintillation and its effects on precise point positioning," *J. Global Positioning Sys.*, 11(1), 22-32, doi:10.5081/jgps.11.1.22, 2012.
- [J5] Matteo, N., Y. Morton, "Ionosphere geomagnetic field: comparison of IGRF model prediction and satellite measurements 1991-2010," *Radio Sci.*, 46, RS4003, doi:10.1029/2010RS004529, 2011.
- [J6] Moore, R., Y. Morton, "Magneto-ionic polarization and GPS signal propagation through the ionosphere," *Radio Sci.*, 46, RS1008, doi:10.1029/2010RS004380, 2011.
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GNSS Receivers and Signal Processing

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- [C2] Xu, D., Y. Morton, "GPS carrier parameters characterization during strong equatorial ionospheric scintillation," Proc. ION ITM, Dana Point, CA, Jan. 2015.
- [C3] Yin, H., Y. Morton, M. Carroll, E. Vinande, "Implementation and Performance Analysis of A Multi-Frequency GPS Signal Tracking Algorithm," Proc. ION GNSS+, Tempa, FL, Sept. 2014. (*Best Presentation Award*)

- [C4] *Carroll, M.*, Y. Morton, E. Vinande, “Triple frequency GPS signal tracking during strong ionospheric scintillations over Ascension Island,” Proc. IEEE/ION PLANS meeting, Monterey, CA, May 2014.
- [C5] *Han, B.*, G. Erry, K. Low, Y. Morton, “Simulation study of the effect of orbital errors on open loop tracking in GPS radio occultation,” Proc. IEEE/ION PLANS meeting, Monterey, CA, May 2014.
- [C6] *Kassabian, N.*, Y. Morton, “Extending integration time for Galileo tracking robustness under ionosphere scintillation,” Proc. IEEE/ION PLANS meeting, Monterey, CA, May 2014.
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- [C8] *Xu, D.*, Y. Morton, *S. Taylor*, “Algorithms and results of tracking Beidou signals during strong ionospheric scintillation over Ascension Island,” Proc. ION ITM, San Diego, CA, Jan. 2014.
- [C9] *Kassabian, N.*, Y. Morton, “Galileo tracking performance under ionosphere scintillation,” 4th Int. Colloquium Sci. Fundamental Aspects Galileo Prog., Oct. 2013. (*Best paper award*)
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- [C15] *Di, R.*, Y. Morton, *S. Peng*, “A USRP-based GNSS and interference signal generator and playback system,” Proc. IEEE PLANS, Myrtle Beach, SC, April 2012.
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- [C17] *Zhang, L.*, Y. Morton, “GPS carrier phase and carrier phase spectrum estimation for ionosphere scintillation studies,” Proc. ION GNSS, p608-616, Portland, OR, Sept. 2011.
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