

Curriculum Vitae

Jason N. Gross, Ph. D., Assistant Professor
Department of Mechanical and Aerospace Engineering
Benjamin M. Statler College of Engineering and Mineral Resources
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1.0 Education

Ph.D. in Aerospace Engineering, West Virginia University, August 2011.

Research Advisor: Dr. Marcello R. Napolitano

Dissertation Title “*Sensor Fusion Based Fault-Tolerant Attitude Estimation for Small Unmanned Aerial Vehicles*”

Field of Study: Nonlinear Estimation, UAV Avionics, Fault-Tolerance and Flight Testing

Qualifying Exam: emphases in Applied Math and Automatic Controls

B.S. in Aerospace Engineering, West Virginia University, December 2007.

B.S. in Mechanical Engineering, West Virginia University, December 2007.

Summa Cum Laude, Graduate of the University Honors College

Honors Thesis Title: “*Low Outgassing Photogrammetry Targets for Spacecraft Alignment*”

2.0 Professional Experience

West Virginia University, Morgantown, WV

Assistant Professor, January 2014-Present

Air Force Institute of Technology, Wright Patterson Air Force Base, Dayton, OH

AFOSR Summer Faculty Fellow, June 2015 – August 2015

California Institute of Technology, NASA Jet Propulsion Laboratory, Pasadena CA

Near Earth Tracking Systems Group

Research Affiliate, January 2014-Present

California Institute of Technology, NASA Jet Propulsion Laboratory, Pasadena CA

Near Earth Tracking Applications Group

Research Technologist, August 2011-December 2013

West Virginia University, Dept. of Mechanical & Aerospace Engineering, Morgantown WV
Graduate Research Assistant, Flight Controls Systems Lab
PI: Dr. Marcello R. Napolitano, January 2008- August 2011

NASA Independent Validation & Verification Facility, Fairmont WV
Consultant, Summer 2009

West Virginia University, Dept. of Mechanical & Aerospace Engineering, Morgantown WV
Course Instructor, January 2008- May 2008

NASA Goddard Spaceflight Center, Greenbelt MD
Consultant, October 2007

NASA Goddard Spaceflight Center, Greenbelt MD
NASA Academy Summer Internship
Research Associate, Advisors: Dr. Ray Ohl and Mr. Henry Sampler, Summer 2007
Summer Internship Program
Student Intern, Advisor: Mr. Benjamin Reed, Summer 2007

3.0 Honors and Awards

- **1st Place NASA Sample Return Robotics Centennial Challenge \$750,000 (Faculty Co-Advisor), 2016**
- **New Researcher of the Year, Statler College, West Virginia University, 2015-2016**
- **Best Paper of IEEE/ION PLANS Track B: Perception of Autonomous and Semi-Autonomous Systems (first author J. Strader), 2016**
- **WVU Big XII Faculty Fellowship, 2015**
- **National Geospatial-Intelligence Agency New Investigator Program Award (NGA NIP), 2015**
- **AFOSR Summer Faculty Fellowship (SFFP), 2015**
- **Level-2 Award NASA Sample Return Robotics Centennial Challenge \$100,000 (Faculty Co-Advisor), 2015**
- **NASA Group Achievement Award, 2013**
Awarded to AirMoss Instrument Team: “For achievement in developing P-band polarimetric imaging radar capability”
- **NASA TechBrief , 2011**
“Low Outgassing Photogrammetry Targets for Use in Outer Space”
- **NASA Academy Robert H. Goddard Outstanding Research Award, 2007.**
- **WVU STEM Supplemental Dissertation Fellowship 2011.**
- **NASA WV Space Grant Graduate Research Fellowship 2010, 2011.**
- **Lloyd Selby College of Engineering and Mineral Resources Scholarship, 2005.**

- *NASA WV Space Grant Scholar*, 2005.
- *Society for the Advancement of Materials and Process Engineering Scholarship*, 2004.
- *WV Promise Scholarship*
- *WVU Mountaineer Scholarship* 2003-2007.
- *WVU Mountain Honorary* (Ranking Honorary), 2007
- *WVU Student Body President*, 2006-2007

4.0 Publications: Patents

1. Bar-Sever, Y., Bertiger, W., Dorsey, A., Harvey, N., Lu, Miller, K., Miller, M., Romans, L. , Sibthorpe, A., Weiss, J., Fernandez, M., **Gross J.** “Real-Time and Post-Processed Orbit Determination and Positioning” U.S. Patent No 9,057, 780 B2 (Granted June 18, 2015) .

5.0 Publications: Peer-Reviewed Journal & Magazine Articles

student authors advised by Dr. Gross indicated with*

1. Watson, R.* , **Gross, J.**, Bar-Sever, Y., Bertiger, W., Haines, B. "Flight Data Assessment of Tightly-Coupled PPP/INS using Real-Time Products", In Press, IEEE Aerospace and Electronic Systems Magazine, Nov., 2016.
2. Chao, H., Gu, Y., **Gross, J.**, Rhudy, M., Napolitano, M., “Flight-Test Evaluation of Navigation Information in Wide-Field Optical Flow”, In Press, Journal of Aerospace Information Systems, 2016.
3. Rhudy, M., Gu, Y. **Gross, J.**, Chao, H., “Onboard Wind Velocity Estimation Comparison for Unmanned Aircraft Systems", In Press, IEEE Transactions on Aerospace and Electronic Systems, July 2016.
4. **Gross, J.**, Watson, R.* , D'Urso, S.* , Gu, Y., "Flight-Test Evaluation of Kinematic Precise Point Positioning of Small UAVs," Vol. 2016, International Journal of Aerospace Engineering, 11 pgs.
5. **Gross, J.**, Gu, Y., Rhudy M. "Fixed-Wing UAV Attitude Estimation Using Single Antenna GPS Signal Strength Measurements", Aerospace, 2016; 3(2):14.
6. Gu, Y., **Gross, J.**, Rhudy, M., Lassak, K, "A Fault-Tolerant Multiple Sensor Fusion Approach Applied to UAV Attitude Estimation," Vol. 2016, International Journal of Aerospace Engineering, 12 pgs.

7. Rhudy, M. B., Gu, Y., Chao, H., **Gross, J.** "Unmanned Aerial Vehicle Navigation Using Wide-Field Optical Flow and Inertial Sensors", Journal of Robotics, Vol. 2015, Article ID 251379, 12 pages.
8. **Gross, J.**, Gu, Y., Rhudy, M. "Robust UAV Relative Navigation with DGPS, INS and Peer-to-Peer Radio Ranging", IEEE Transactions on Automation Science and Engineering, Vol 12, Is. 3, pp 935-944, 2015.
9. Rhudy, M., Gu, Y., **Gross, J.**, Gururajan, S., and Napolitano, M.. "Sensitivity Analysis of Extended and Unscented Kalman Filters for Attitude Estimation," Journal of Aerospace Information Systems, vol. 10, no. 3, pp. 131–143, 2013.
10. **Gross, J.**, Gu, Y., Rhudy, M., Gururajan, S., Napolitano, M. "Flight Test Evaluation of Sensor Fusion Algorithms for Attitude Estimation" IEEE Transactions on Aerospace Electronic Systems, Vol. 48 Is. 3, July, 2012.
11. Rhudy, M. Gu, Y., **Gross, J.**, Napolitano, M. "Evaluation of Matrix Square Root Operations for UKF within a UAV GPS/INS Sensor Fusion Application," International Journal of Navigation and Observation, vol. 2011, Article ID 416828, 11 pages, 2011. doi:10.1155/2011/416828
12. **Gross, J.**, Sampler, H. Reed, B. "Low-Outgassing Photogrammetry Targets for Use in Outer Space" NASA Tech Briefs, August 2011.

6.0 Publications: Book Chapters

student authors advised by Dr. Gross indicated with*

1. Gu, Y. **Gross, J.**, Barchesky, F., Chao, H, Napolitano M. "Avionics Design for a Sub-Scale Fault-Tolerant Flight Control Test-Bed" Recent Advances in Aircraft Technology, Ramesh K. Agarwal (Ed.), ISBN: 978-953-51-0150-5

7.0 Publications: Conference Proceedings

student authors advised by Dr. Gross indicated with*

1. Tehrani, N.*, **Gross, J.**, "Characterization of Multi-Antenna GNSS, Multi-Sensor Attitude Determination for Stratospheric Balloon Platforms" Accepted to Appear in Proceedings of the 2017 AIAA Modeling and Simulation Technologies Conference – SciTech 2017, Grapevine, TX, Jan. 2017.

2. D'Urso, S.*, **Gross, J.**, "Sensitivity of Unmanned Aerial Vehicle Model-Aided Navigation" Accepted to Appear in the Proceedings of the 2017 AIAA Modeling and Simulation Technologies Conference – SciTech 2017, Grapevine, TX, Jan. 2017.
3. **Gross, J.** Humphreys, T., "GNSS Spoofing, Jamming, and Multipath Interference Classification using a Maximum-Likelihood Multi-Tap Multipath Estimator" Accepted to Appear in the Proceedings of the 2017 Institute of Navigation International Technical Meeting (ION-ITM 2017), Monterey, CA, Feb. 2017.
4. Sivaneri, V.*, **Gross, J.**, "Cooperative Navigation between a Ground Vehicle and an Unmanned Aerial Vehicle in GNSS-Challenged Environments" Proceedings of the 29th International Technical Meeting of the Satellite Division of the Institute of Navigation (ION GNSS+ 2016), Portland, OR, Sept. 12-16 2016.
5. Hardy, J.*, Strader, J., **Gross, J.**, Gu, Y., Keck, M., Douglas, J., Taylor, C. "Unmanned Aerial Vehicle Relative Navigation in GPS Denied Environments", IEEE/ION PLANS, Savannah, GA, Apr. 2016
6. Strader, J., Gu, Y., **Gross, J.**, De Pertrillo, M., Hardy, J.* "Cooperative Relative Localization for Moving UAVs with Single Link Range Measurements" IEEE/ION PLANS, Savannah, GA, Apr. 2016
7. **Gross, J.**, Watson*, R., Sivaneri*, V., Bar-Sever, Y., Haines, B, Bertiger, W.. "Integration of Inertial Navigation into Real-Time GIPSY-x (RTGx)" *Proceedings of the 28th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2015)*, Tampa FL. Sept. 2015. pp. 2560-2569.
8. Watson*, R., Sivaneri*, V., **Gross, J.** "Performance Evaluation of Tightly-Coupled GNSS Precise Point Positioning Inertial Navigation System Integration in a Simulation Environment" *Proceedings of the AIAA Guidance Navigation and Control Conference (GNC)*, San Diego, CA. Jan. 2016
9. **Gross, J.**, Keesee, A., Christian, J., Gu, Y., Scime, E., Komjathy, A., Lightsey, E.G., Pollock, C. "The CuSPED Mission: CubeSat for GNSS Sounding of the Ionosphere-Plasmasphere Electron Density" *Proceedings of the 2016 AIAA SciTech Forum*, San Diego, CA, Jan. 2016.
10. Morris, J., Zemerick, S., Grubb, M., Lucas, J., Jaridi, M, **Gross, J.**,Ohi*, N., Christian, J., Vassiliadis, D., Kadiyala, A., Pachol, M., Dawson, J., Korakakis, D., Bishop, R. "Simulation-To-Flight (STF-1): A Mission to Enable CubeSat Software-based Validation and Verification" *Proceedings of the 2016 AIAA SciTech Forum*, San Diego, CA, Jan. 2016.

11. **Gross, J.**, Gu, Y., Dewberry, B. "Tightly-Coupled GPS/UWB-Ranging for Relative Navigation During Formation Flight")” *Proceedings of the 27th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2014)*, Tampa FL. Sept. 2014.
12. Jones, K. H., **Gross, J.** "Reducing Size, Weight, and Power (SWaP) of Perception Systems in Small Autonomous Aerial Systems" AIAA Aviation Technology, Integration, and Operations Conference, Atlanta, Georgia, June 2014.
13. Chao, H., Gu, Y., **Gross, J.**, Guo, G., Fravolini, M.L., and Napolitano, M.R., "A Comparative Study of Optical Flow and Traditional Sensors in UAV Navigation," 2013 American Control Conference, Washington, DC, 2013.
14. Romero-Wolf, A., **Gross, J.**, Zarifian, P, Gorham, P., Wessel, S., Saltzberg, D. "The CHIRP Mission Concept: A CubeSat Pathfinder for the Development of Cosmic Ray Astronomy" 33rd Annual International Cosmic Ray Conference, Rio De Janeiro, Brazi, July 2013.
15. Bertiger W., Bar-Sever Y., Bokor, E., Butala, M., Dorsey, A., **Gross, J.**, Harvey, N., Lu, W., Miller, K., Miller, M., Romans, L, Sibthorpe, A., Weiss, J.P, Jones, M. Holden, J., Donigan, A., Saha, P. "First Orbit Determination Performance Assessment For The OCX Navigation Software In An Operational Environment" ION GNSS+ Meeting, Nashville, TN, 2012.
16. Rhudy, M., **Gross, J.** Gu, Y. Napolitano M. "Fusion of GPS and Redundant IMU Data for Attitude Estimation" AIAA Guidance, Navigation and Control Conference and Exhibit, Minneapolis, MN, August 2012.
17. **Gross, J.**, Gu, Y., Rhudy, M., Barchesky, F., Napolitano, M. "On-line Modeling and Calibration of Low-Cost Navigation Sensors" AIAA Modeling and Simulation Technologies Conference, Portland, OR, August 2011.
18. Barchesky, F, **Gross, J.**, Gu, Y., Rhudy, M., Gururajan, S., Napolitano, M. "Development of a GPS/INS Sensor Fusion Simulation Environment Using Flight Data" AIAA Modeling and Simulation Technologies Conference, Portland, OR, August 2011.
19. Rhudy, M., Gu, Y., **Gross, J.**, Napolitano, M. "Sensitivity Analysis of EKF and UKF in GPS/INS Sensor Fusion", AIAA Guidance, Navigation and Conference and Exhibit, Portland, OR, August 2011.

20. **Gross, J.**, Gu, Y., Seanor, B., Gururajan, S., Napolitano, M. “A Comparison of Extended Kalman Filter, Sigma-Point Kalman Filter, and Particle Filter in GPS/INS Sensor Fusion”, AIAA Guidance Navigation and Controls Conference and Exhibit, Toronto, Canada, August 2010.
21. **Gross, J.**, Gu, Y., Napolitano, M. “A Systematic Approach for Extended Kalman Filter Tuning and Low-Cost Inertial Sensor Calibration within a GPS/INS Application”, AIAA Guidance Navigation and Controls Conference and Exhibit, Toronto, CA, August 2010.
22. **Gross, J.**, Gu, Y., Seanor, B., Gururajan, S., Napolitano, M. “Advanced Research Integrated Avionics System for Fault-Tolerant Flight Research”, AIAA Guidance Navigation and Controls Conference and Exhibit, Chicago, Illinois, August 2009

8.0 Publications: Posters and and/or Abstract Reviewed Presentations

student authors advised by Dr. Gross indicated with*

1. Bertiger, W., Bar-Sever, Y., **Gross, J.**, Miller, M., Romans, L., Sibois, A., Sibthorpe, A., Vallisneri, M., Weiss, J., "Systematic Errors in Estimation of GPS Clock States", 2016 International GNSS Service (IGS) Workshop, Sydney, Australia, Jan. 2016.
2. Vassiliadis, D., Christian, J., Keesee, A., Spencer, E., **Gross, J.**, Lusk, G. “*Bringing Space Science to the Undergraduate Classroom: NASA's USIP Mission*” Poster Presented at American Geophysical Union Fall Meeting 2015. San Francisco, CA
3. Ohi*, N., **Gross, J.** “*STF-1 CubeSat Mission GNSS Experiment Flight Software Design and Testing*” AIAA Region I Young Professional, Student, and Education Conference 2015 Baltimore, MD, Nov. 2015.
4. Sivaneri*, V., Watson*, R., **Gross, J.** “*Comparison of Unscented and Extended Kalman Filters for Global Navigation Satellite System Precise Point Positioning/Inertial Navigation*” AIAA Region I Young Professional, Student, and Education Conference 2015 Baltimore, MD, Nov. 2015.
5. Watson*, R., Sivaneri*, V., **Gross, J.**, “*Performance Evaluation of Tightly-Coupled GNSS Precision Point Positioning Inertial Navigation System Integration*” AIAA Dayton-Cincinnati Aerospace Sciences Symposium (DCASS) Dayton OH 2015
6. Desai, S. D., Bertiger, W. **Gross, J.** Haines, B. Harvey, N. Selle, C., Sibthorpe, A., Weiss, J.P. “Results from the Reanalysis of Global GPS Data in the IGS08 Reference Frame”, AGU Fall Meeting, San Francisco, CA, November 2011.

7. Desai, S, Haines, B., **Gross, J.**, Stowers, D. “Verification and Validation of the GNSS Stations at the Prototype Core Site for NASA’s Next Generation Space Geodesy Network” AGU Fall Meeting, San Francisco, CA, November 2013.

9.0 Invited Seminars, Posters, and/or Presentations

student authors advised by Dr. Gross indicated by*

1. Gu, Y, Park, Y-L, Waterland, N., Li, X., **Gross, J.**, “Precision Pollination Robot”, Poster Presented at the 2016 Annual National Robotics Initiative Program Meeting, Washington, DC, November, 2016.
2. **Gross, J.** “*Multi-Constellation GNSS, Multi-Sensor Precise Point Positioning*” 2st Annual Intelligence Community Academic Research Symposium, Washington ,DC. September 2016.
3. **Gross, J.** and Watson R.*, “*Latest Results in PPP/INS Integration in RTGx for Airborne Applications*”, NASA Jet Propulsion Laboratory GDGPS Team Update, June 2016.
4. **Gross, J.** and Watson R.*, “*Advances in GIPSY GNSS/IMU integrated positioning and application to UAVs*”, National Geodetic Survey's NOAA Airborne Gravity for Geodesy Summer School, Washington DC, June 2016.
5. **Gross, J.** “*Multi-Constellation GNSS, Multi-Sensor Precise Point Positioning Year-1 Update*” National Geospatial-Intelligence Agency, Washington ,DC. June 2016.
6. **Gross, J.** “*Multi-Constellation GNSS, Multi-Sensor Precise Point Positioning*” 1st Annual Intelligence Community Academic Research Symposium, Washington ,DC. September 2015.
7. **Gross, J.** “*Integrity Ranking within Particles Filters for Multi-GNSS Monitoring*” Closeout Presentation for Air Force Summer Faculty Fellowship at the Air Force Institute of Technology. Wright Patterson Air Force Base, Aug. 2015
8. Watson, R.*, **Gross, J.** “*Performance Evaluation of Tightly-Coupled GNSS Precision Point Positioning Inertial Navigation System Integration in a Simulation Environment*” Seminar Presented at NASA Jet Propulsion Laboratory Section 335 Advanced Research on Tracking Systems (ARTS) Seminar, Pasadena, CA. May 2015
9. Gu, Y., **Gross, J.** “Autonomous Systems Research/Education at WVU MAE Dept: Ground, Aerial, and Space Systems” Presented to the National Institute of Aerospace Advisory Board, ,Orlando FL, Jan. 2015

10. Gu, Y., Park, Y.L, Waterland, N, **Gross, J.** “Precision Pollination Robot” ,USDA NIFA, Washington, DC, December 2014.
11. **Gross, J.** “Robust Relative Navigation with DGPS/INS/UWB During UAV Formation Flight” Institute of Navigation, Dayton, OH, Section, Dayton, OH, November 2014
12. **Gross, J.** Faculty Interview Seminar, West Virginia University, Dept. of Mech. and Aero., Morgantown, WV, October 2013
13. Romero-Wolf, A, **Gross, J.**, Zarifian, P, “CHIRP CubeSat Mission” Jet Propulsion Laboratory, Pasadena CA, Section 312 Seminar, June 2013
14. **Gross, J.** “Fault Tolerant Attitude Estimation Solutions for Small UAVs” Jet Propulsion Laboratory, Pasadena CA, Section 335 ARTS Seminar, February 2011.

10.0 Funded Research Projects

Title: Precision Pollination Robot Sponsor: National Robotics Initiative, USDA NIFA Role: Co-PI, PI: Yu Gu, WVU	Period of Performance: 11/15/16 11/14/18 Budget: \$709,715
Title: Integrity Ranking within Particle Filters for Multi-Constellation GNSS Sponsor: Air Force Research Lab through MacAulay-Brown Inc. Role: PI	Period of Performance: 6/6/16 6/6/17 Budget: \$100,040
Title: Enabling Moving Target Hand-off in GPS-Denied Environments Sponsor: Air Force Phase I STTR Role: WVU PI	Period of Performance: 5/14/15 2/15/16 \$150,000 Budget: \$60,731 (WVU)
Title: Multi-Constellation GNSS, Multi-Sensor Precise Point Positioning Sponsor: National Geospatial-Intelligence Agency Role: PI	Period of Performance: 5/31/17 Budget: \$199,925
Title: A Concept Study for the use of Lighter Than Air (LTA) Vehicles for the Next Generation of Sub-Orbital Payloads	Period of 5/15/15

Sponsor: NASA WVSGC Joint University-Industry Program Role: PI	Performance: 5/14/16 Budget: \$40,690
Title: Simulation-To-Flight 1 (STF1) 3U CubeSat Mission Sponsor: NASA CubeSat Launch Initiative, NASA IV&V, WVU, WVSGC Role: Co-PI, PI: Justin Morris, NASA GSFC	Period of Performance: 6/1/15 7/31/17 Budget: Free Launch
Title: Development of a Spacecraft Design Laboratory Sponsor: NASA WVSGC Joint University-Industry Program Role: Co-PI	Period of Performance: 5/15/15 5/14/16 Budget: \$10,000
Title: Real-Time GIPSY-X Inertial Navigation System Integration Sponsor: California Institute of Technology NASA Jet Propulsion Laboratory Role: PI	Period of Performance: 11/12/14 9/30/17 Budget: \$211,500
Title: TESS Mobile CubeSat Development and Test Environment Task Sponsor: TMC2 through NASA WVSGC Role: Co-PI	Period of Performance: 7/23/14 10/31/14 Budget: \$24,518
Title: SSCO Technology Development for Robotic Servicing of Orbital Space Assets: Technology Assessment for GPS at GEO and Ground Penetrating Radar to Support ARM Sponsor: AS&D (ASRC Federal Space and Defense) /WVRTC Program Role: Collaborator	Period of Performance: 5/16/14 8/15/14 Budget: \$9,444
Title: Ultra-Wideband Ranging and Communications to Augment GPS Relative Navigation of UAVs Sponsor: NASA WV EPSCoR Role: Pi	Period of Performance: 5/16/14 5/15/15 Budget: \$32,822
Title: INSIGHTS: Inertial Navigation Systems Integrated into the GIPSY-OASIS for High-Accuracy Tightly-Coupled Solutions Sponsor: NASA WV Space Grant Consortium Role: PI	Period of Performance: 5/16/14 5/15/15 Budget: \$54,723

Title: GPS Orbit Technologies and Support	Period of Performance:	4/11/14 11/12/15
Sponsor: California Institute of Technology NASA Jet Propulsion Laboratory	Budget:	\$15,000
Role: PI		

11.0 Professional Societies & Service

Memberships

Senior Member, American Institute of Aeronautics and Astronautics (AIAA) ,2008-Present,
Associate Member of the AIAA Guidance, Navigation and Control (GNC) Technical Committee, May 2015 – May 2018
Member, Institute of Navigation (ION), 2013-Present
Member, Institute of Electronics and Electrical Engineering (IEEE), 2015-Present
Member, NASA Academy Alumni Association, 2007-Present

Editorships & Conference Organization

Associate Editor, 2016 American Control Conference (AIAA sponsored sessions)
Technical Program Committee, Track B: Satellite Navigation, IEEE TVT Conf. 2016, 2017
Session Co-Chair, “Mitigation of Jamming and Spoofing”, 2017 Institute of Navigation International Technical Meeting (2017 ION-ITM)

Journal/Conference Paper Reviewer

GPS Solutions, Springer;
IEEE Transactions on Aerospace & Electronic Systems;
IEEE Aerospace & Electronic Systems Magazine;
IEEE Transactions on Vehicle Technology;
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing;
Journal of Aerospace Science and Technology;
IEEE Transactions on Automation Science & Engineering;
AIAA Journal of Spacecraft and Rockets;
Journal of Aerospace;
Sensors;
Algorithms;
IET Science, Measurement & Technology;
AIAA SciTech, GNC;
American Control Conference;
IEEE International Conference on Robotics & Automation (ICRA)

Research Proposal Reviewer

Austrian Science Fund (FWF);
Research North Dakota;

12.0 Teaching Experience

MAE 593I: **Global Positioning System**, Fall 2016
MAE 331: **Fluid Mechanics**, Fall 2016
MAE 293C/493C: **Space Mission Development**, Co-Instructor with Dr. Christian, Spring 2016.
MAE 593I: **Global Positioning System**, Fall 2015
MAE 293C/493C: **Space Mission Development, New Course Development**, Co-Instructor with Dr. Christian, Fall 2015.
MAE 475, **Spacecraft Design**, BSAE Capstone Design Course, Spring 2015.
MAE 493J, MAE 593K, CpE 493N, CpE 591F Co-Instructor, with Dr. Gu, Dr. Klinkhachorn, , Dr. Cheng, **Planetary Rover Design**, Spring 2015;
MAE 593I, **Global Positioning System, New Course Development**, Fall 2014
MAE 331, **Fluid Mechanics**, Spring 2014
MAE 241, **Engineering Mechanics: Statics**, Spring 2008

14.0 Student Advising

Students Graduated

Ryan Watson, MSAE, Research Advisor, Committee Chair, Graduated Summer 2016
Thesis title "*Precise Point Positioning Inertial Navigation Integration for Airborne Kinematic Platforms*"
Summer 2016 Internship at NASA JPL;
Now a PhD student at WVU;

Jeremy Hardy, MSAE, Research Advisor, Committee Chair, Graduated Spring 2016
Thesis title "*Sensitivity Analysis of a Relative Navigation Solution for UAVs in a GNSS-Denied Environment*"
Summer 2016 Internship at Systems & Technology Research in Woburn, MA;
Now an engineer at Systems & Technology Research in Woburn, MA;

Current Graduate Students

Shannen Daly, MSAE, Research Advisor, Committee Chair, Fall 2016 - Present
Sean Lantto, MSAE, Research Advisor, Committee Chair, Fall 2016 - Present
Nathan Tehrani, MSAE, Research Advisor, Committee Chair, Fall 2015 - Present
Victor Sivaneri, PhD AE, Research Advisor, Committee Chair, Spring 2015 - Present
Stephane D'Urso, MSAE, Research Advisor, Committee Chair, Spring 2015 - Present
Ryan Watson, PhD AE, Research Advisor, Committee Chair, Fall 2016- Present

Graduate Students Committee Member

Yaohui Ding, MSAE, Graduated Summer 2015
Trevor Caplinger, MSAE, Graduated Summer 2015
Jordan Sell, MSME, Graduated Spring 2015
Alan Didion, MSAE, Graduated Fall 2015
Sean Patrick, MSAE, Graduated Fall 2015
Chris Gioia, PhD AE, Graduated Spring 2016
Jared Strader, MSME, Graduated Summer 2016
Andrew Liounis, MSAE, Graduated Spring 2016
Ehsan Moradi Pari, PhD CSEE, Graduated Spring 2016
Amin Tahmasbi Sarvestani, PhD CSEE, Graduated Fall 2016
Alex Hypes, MSME
Lylia Benhacine, MSAE
Theodore Lane, PhD Physics
Kyle Lassak, PhD AE
Shane Haught, MSAE
Scott Harper, MSAE

Undergraduate Students Research Advisor

Adam Roh, BSCE/BSEE, Fall 2016-Present
Keegan Mueller, BSME, Summer 2016 STEM-SURE Student
Sean Lantto, BSAE/BSME, Fall 2015 – Summer 2016
Nicholas Ohi, BSAE/BSME, Summer 2015 – Spring 2016
Brandon Johnston, BSAE/BSME, Summer 2014 – Spring 2015
Zach Rumble, BSAE/BSME, Summer 2014 – Spring 2015
Timothy Bear, BSAE/BSME, Fall 2014 – Present

14.0 Community Outreach

1. Participation in Mission Automation Collaboration hosted by SOCCOM/SOFWERX
2. Prospective WVU Student UAV Lab Tour (October & November 2016 ~50 students)
3. Judge at WV State Science High School Fair, Fairmont State University, April 2016
4. WVU STEM SURE Seminar on Seeking Graduate Education, Summer 2015
5. Mentor to High School Senior Capstone Course, David Lituchy, 2015 academic year
6. Referee at WVROX 24-hour FIRST Robotics Competition, August 2014

15.0 Media Coverage (Selected)

1. [From Mars to a greenhouse near you: WVU team transitions robot from rover to pollinator](#), WVU Today, November, 2016
2. [WVU Students win \\$750,000 NASA Robotics Challenge](#), WVU Today, September 2016
3. [Navigation Progress for Indoors and UAVs](#), Tony Murfin, GPS World Magazine, July, 2016
4. [WVU Statler College award winners announced WVU Today](#), April 2016

5. [Meet STF-1](#) WVU Magazine, Spring 2016
6. [Seven additional WVU faculty members awarded Big 12 research grants](#) WVU Today, October 2015
7. [WVU engineering students honored on Capitol Hill for historic victory in NASA robotics competition](#) WVU Today, September 2015
8. [WVU engineering students make history and bring home \\$100,000 award in NASA robotics competition](#) WVU Today, June 2015
9. [NASA Awards \\$100,000 to Winning Team of Robot Challenge](#) , NASA, June 2015
10. [WVU partners with NASA to launch state's first satellite into orbit](#) WVU Today, April 2015
11. [WVU's Gross wins National Geospatial Intelligence Agency New Investigator award](#) WVU Today, April 2015