



CURRICULUM VITAE

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Education

- Ph.D. in Aerospace Engineering*, West Virginia University, Morgantown, WV, December 2004.
Research Advisor: Dr. Marcello R. Napolitano
Dissertation: “*Design and Flight Testing Actuator Failure Accommodation Controllers on WVU YF-22 Research UAVs*”
- M.S. in Control Engineering*, Shanghai JiaoTong University, Shanghai, China, February 1999.
Research Advisor: Dr. Zhiming Wu
Thesis: “*The Application of Genetic Algorithms in the Design of a Fuzzy Model Reference Learning Controller*”
- B.S. in Automatic Controls*, Shanghai University, Shanghai, China, June 1996.
Research Advisor: Dr. Fengyao Wang
Thesis: “*Design of a Sliding Mode Controller for a Ship Steering System*”

Professional Experience

- Assistant Professor*, Department of Mechanical & Aerospace Engineering, West Virginia University (2012 – present).
- Adjunct Assistant Professor*, Lane Department of Computer Science and Electrical Engineering, West Virginia University (2012 – present).
- Research Assistant Professor*, Department of Mechanical & Aerospace Engineering, West Virginia University (2005 – 2012).
- Consultant*, Kutta Technologies, Phoenix AZ (2008).

Research Areas of Interest

- Theory*: bio-inspired perception, control, and interaction methods for autonomous systems.
- Practice*: autonomous aerial and ground robot systems design, integration, and experiments.

Awards and Honors

- Best Paper Award*, Track B: Perception for Autonomous and Semi-Autonomous Systems, IEEE/ION PLANS 2016, April 2016.
- Level-2 Prize (\$100,000) Winner*, Team Leader, NASA Centennial Challenge (Sample Return Robot Challenge), June 2015.
- Outstanding Researcher 2014-2015*, Statler College of Engineering and Mineral Resources.
- Level-1 Prize Winner and Technology Achievement Award*, Team Leader, NASA Centennial Challenge, June 2014.

Professional Societies

- Senior Member*, American Institute of Aeronautics and Astronautics (AIAA)
- Member*, Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Control Systems Society
 - IEEE Robotics and Automation Society
 - IEEE Aerospace and Electronic Systems Society

Professional Services

Member, AIAA Intelligent Systems Technical Committee (ISTC), 2016.

Creator, WVU Robotics Achievement Undergraduate Fellowship, 2015.

Advisory Board, Mechatronics Engineering Technology at California University of Pennsylvania, from 2014.

Editorial Board, Journal of Aeronautics & Aerospace Engineering, 2012-2014.

Lead Guest Editor, Special Issue on Formation Flight Control, International Journal of Aerospace Engineering, August 01, 2011.

Session Co-Chair, Autonomous System Collision Avoidance Technical Session, 2008 AIAA Guidance, Navigation, and Control Conference.

Reviewer – Proposal, Canada Foundation for Innovation, Georgia National Science Foundation, New York Space Grant, Research North Dakota, WVU Senate Grant.

Reviewer – Journal, Aerospace Science and Technology, Aircraft Engineering and Aerospace Technology, Automatica, Electronics, Engineering Applications of Artificial Intelligence, IEEE Transactions on Aerospace and Electronic System, IEEE Transactions on Control Systems Technology, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Robotics, IEEE Sensors Journal, IEICE Electronics Express, International Journal of Advanced Robotic Systems, International Journal of Control, Journal of Aerospace Engineering, Journal of Control Science and Engineering, Journal of Guidance, Control, and Dynamics, Journal of Real-Time Image Processing, Robotics, Sensors.

Reviewer – Conference, AIAA Guidance, Navigation and Control Conference, American Control Conference, International Conference on Advanced Intelligent Mechatronics, International Conference on Automation Science and Engineering, International Conference on Intelligent Robots and Systems, International Conference on Robotics and Automation, International Conference on Unmanned Aircraft Systems, Israel Annual Conference on Aerospace Sciences.

Publications: Book Chapter

1. **Gu, Y.**, Gross, J., Barchesky, F., Chao, H., and Napolitano, M., “*Avionic Design for a Sub-Scale Fault Tolerant Flight Control Test-Bed*,” Chapter 21, *Recent Advances in Aircraft Technology*, ISBN: 978-953-51-0150-5, pp. 499-522, 2012.
2. **Gu, Y.**, Campa, G., Seanor, B., Gururajan, S., and Napolitano, M., “*Autonomous Formation Flight – Design and Experiments*,” Chapter 12, *Aerial Vehicles*, ISBN 978-953-7619-41-1, pp. 233-256, Jan 2009.

Publications: Journal Article

1. Rice, C., **Gu, Y.**, Chao, H., Larrabee, T., Gururajan, S., Napolitano, M., Mandal T., and Rhudy M., “Autonomous Close Formation Flight Control with Fixed Wing and Quadrotor Test Beds,” Accepted, International Journal of Aerospace Engineering, 2016.
2. Gross, J., **Gu, Y.**, and Rhudy, M., “*Fixed-Wing UAV Attitude Estimation using Single Antenna GPS Signal Strength Measurements*,” Accepted, Aerospace, 2016.

3. **Gu, Y.**, Gross, J., Rhudy, M., and Lassak, K., “A *Fault-Tolerant Multiple Sensor Fusion Approach Applied to UAV Attitude Estimation*,” International Journal of Aerospace Engineering, Vol. 2016, Article ID 6217428, 2016.
4. Rhudy, M., Fravolini, M.L., **Gu, Y.**, Napolitano, M., Gururajan, S., and Chao H., “*Aircraft Model Independent Airspeed Estimation without Pitot Tube Measurements*,” IEEE Transactions on Aerospace and Electronic Systems, 51(3):1980-95, Jul. 2015.
5. Rhudy, M., **Gu, Y.**, Chao, H., and Gross, J., “*Unmanned Aerial Vehicle Navigation Using Wide-Field Optical Flow and Inertial Sensors*,” Journal of Robotics, Volume 2015, Article ID 251379, Oct 2015.
6. Gross, J., **Gu, Y.**, and Rhudy, M., “*Robust UAV Relative Navigation with DGPS, INS, and Peer-to-Peer Radio Ranging*,” IEEE Transactions on Automation Science and Engineering, Volume 12, Issue 3, Jan 2015.
7. Chao, H., **Gu, Y.**, and Napolitano, M., “*A Survey of Optical Flow Techniques for Robotics Navigation Applications*,” Journal of Intelligent & Robotic Systems, Volume 73, Issue 1-4, pp 361-372, 2014.
8. Rhudy, M., **Gu, Y.**, “*Online Stochastic Convergence Analysis of the Kalman Filter*,” International Journal of Stochastic Analysis, vol. 2013, Article ID 240295, 9 pages, 2013. doi:10.1155/2013/240295.
9. Rhudy, M., **Gu, Y.**, and Napolitano, M., “*An Analytical Approach for Comparing Linearization Methods in EKF and UKF*,” International Journal of Advanced Robotic Systems, Vol. 10, No. 208, 2013.
10. Rhudy, M., **Gu, Y.**, Gross, J., Gururajan, S., and Napolitano, M., “*Sensitivity Analysis of Extended and Unscented Kalman Filters for Attitude Estimation*,” AIAA Journal of Aerospace Information Systems, Vol. 10, No. 3, pp. 131-143, Mar 2013.
11. Gross, J., **Gu, Y.**, Rhudy, M., Gururajan, S., and Napolitano, M., “*Flight Test Evaluation of Sensor Fusion Algorithms for Attitude Estimation*,” IEEE Transactions on Aerospace and Electronic Systems, vol.48, no.3, pp.2128-2139, Jul, 2012.
12. Rhudy, M., **Gu, Y.**, Gross, J., and Napolitano, M., “*Evaluation of Matrix Square Root Operations for UKF within a UAV-Based GPS/INS Sensor Fusion Application*,” International Journal of Navigation and Observation, Article ID 416828, doi:10.1155/2011/416828, 2011.
13. Sagoo, G. K., Gururajan, S., Seanor, B., Napolitano, M., Perhinschi, M., **Gu, Y.**, Campa, G., “*Evaluation of a Fault Tolerant Scheme in a 6-DOF Motion Flight Simulator*”, AIAA Journal of Aerospace Computing, Information and Communication, doi: 10.2514/1.42299, Vol. 7, No. 2, 2010.
14. Mammarella, M., Campa, G., Napolitano, M., Fravolini, M., Perhinschi, M., and **Gu, Y.**, “*Machine Vision / GPS Integration Using EKF for the UAV Aerial Refueling Problem*,” Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions on, Vol. 38, No. 6, pp.791-801, Nov, 2008.
15. Campa, G., **Gu, Y.**, Seanor, B., Napolitano, M., Pollini, L., and Fravolini, M., “*Design And Flight Testing Of Nonlinear Formation Control Laws*,” Control Engineering Practice, Vol. 15, No. 9, pp 1077-1092, Sep 2007.

16. **Gu, Y.**, Seanor, B., Campa, G., Napolitano, M., Rowe, L., Gururajan, S., Perhinschi, M.G., and Wan, S., “*Design And Flight Testing Evaluation Of Formation Control Laws*,” IEEE Transactions on Control Systems Technology, Vol.14, No. 6, pp. 1105-1112, Nov 2006.
17. Campa, G., Fravolini, M.L., Seanor, B., Napolitano, M., Del Gobbo, D., **Gu, Y.**, and Gururajan, S., “*On-Line Learning Neural Networks for Sensor Validation for the Flight Control System of a B777 Research Aircraft Model*,” International Journal of Robust and Non-Linear Control, Vol. 12, pp. 987-1007, Sep, 2002.
18. **Gu, Y.**, Wu, Z.M., and Jiang, Z.P., “*The Rebuilding Process of Hybrid RAID*,” Micro Computer Systems (in Chinese), Vol. 15, No. 2, pp. 44-46, Feb 1999.
19. Tang, H.M., Wang, F.Y., and **Gu, Y.** “*A Sliding-Mode Variable-Structure Control Method on Automatic Ship Steering*,” Control Theory & Application (in Chinese), Vol.13, Sup.1, Oct, 1996.

Publications: Journal Editorial

1. **Gu Y.**, “*Unmanned Aerial Vehicles as a Versatile Research Tool*,” Journal of Aeronautics & Aerospace Engineering, vol.1, iss.4, doi:10.4172/2168-9792.1000e112, 2012.
2. **Gu, Y.**, Campa, G., Innocenti, M., “*Formation Flight Control*,” International Journal of Aerospace Engineering, Volume 2011, Article ID 798981, doi:10.1155/2011/798981, 2011.

Publications: Refereed Conference Proceeding

1. Strader, J., Harper, S., **Gu, Y.**, “*Aircraft Instrumentation and Computer Vision-Aided Flight Analysis of Local Air Flow*,” Accepted, to be presented at AIAA Aviation 2016, Washington DC, June, 2016.
2. Strader, J., **Gu, Y.**, Gross, J., De Petrillo, M., Hardy, J., “*Cooperative Relative Localization for Moving UAVs with Single Link Range Measurements*,” IEEE/ION PLANS, Savannah, Georgia, Apr 2016. **Best Paper Award**, Track B: Perception for Autonomous and Semi-Autonomous Systems.
3. Hardy, J., Strader, J., Gross, J., **Gu, Y.**, Cabezas, R., Keck, M., Douglas, J., Taylor, C., “*Unmanned Aerial Vehicle Relative Navigation in GPS Denied Environments*,” IEEE/ION PLANS, Savannah, Georgia, Apr 2016.
4. Mandal, T., **Gu, Y.**, “*Online Pilot Model Parameter Estimation Using Sub-Scale Aircraft Flight Data*,” Invited, AIAA SciTech Conference, San Diego, CA, Jan 2016.
5. Lassak, K., **Gu, Y.**, “*Real-Time Extended Kalman Filter Stability Indicator*,” Invited, AIAA SciTech Conference, San Diego, CA, Jan 2016.
6. Tian, P., Chao, H., **Gu, Y.**, Hagerott, S., “*UAV Flight Test Evaluation of Fusion Algorithms for Estimation of Angle of Attack and Sideslip Angle*” AIAA SciTech Conference, San Diego, CA, Jan 2016.
7. Gross, J., Keesee, A., Christian, J., **Gu, Y.**, Scime, E., Komjathy, A., Lightsey, E.G., Pollock, C., “*CUBESat for GNSS Sounding of the Ionosphere-Plasmasphere Electron Density*,” AIAA SciTech Conference, San Diego, CA, Jan 2016.
8. Chao, H., **Gu, Y.**, Tian, P., Zheng, C., Napolitano, M., “*Wake Vortex Detection with UAV Coase Formation Flight*,” AIAA Atmospheric Flight Mechanics Conference, Kissimmee, FL, Jan, 2015.

9. Rhudy, M., Chao, H., **Gu, Y.**, “*Wide-Field Optical Flow Aided Inertial Navigation for Unmanned Aerial Vehicles*,” 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Chicago, Sep, 2014.
10. Rice, C., **Gu, Y.**, Chao, H., Larrabee, T., Gururajan, S., Napolitano, M., Mandal, T., Rhudy, M., “*Control Performance Analysis for Autonomous Close Formation Flight Experiments*,” International Conference on Unmanned Aircraft Systems, Orlando, FL, May, 2014.
11. Rhudy, M., **Gu, Y.**, Chao, H., “*Wind Field Velocity and Acceleration Estimation Using a Small UAV*,” AIAA Modeling and Simulation Technologies Conference, Atlanta, GA, Jun 2014.
12. Larrabee, T., Chao, H., Rhudy, M., **Gu, Y.**, and Napolitano, M., “*Wind Field and Wake Estimation in UAV Formation Flight*,” American Control Conference, Portland, OR, Jun 2014.
13. Mandal, T., and **Gu, Y.**, “*Pilot-Vehicle System Modeling Using Sub-Scale Flight Experiments*,” Invited, AIAA Guidance, Navigation, and Control Conference, Washington DC, Jan 2014.
14. Rhudy, M., **Gu, Y.**, and Napolitano, M.R., “*Relaxation of Stability Requirements for Extended Kalman Filter Stability within GPS/INS Attitude Estimation*,” Invited, AIAA Guidance, Navigation, and Control Conference, Washington DC, Jan 2014.
15. Rhudy, M., **Gu, Y.**, and Napolitano, M., “*UAV Attitude, Heading, and Wind Estimation Using GPS/INS and an Air Data System*,” AIAA Guidance, Navigation, and Control Conference, Boston, MA, Aug 2013.
16. Rhudy, M., **Gu, Y.**, and Napolitano, M., “*Low-Cost Loosely-Coupled Dual GPS/INS for Attitude Estimation with Application to a Small UAV*,” AIAA Guidance, Navigation, and Control Conference, Boston, MA, Aug 2013.
17. Rhudy, M., **Gu, Y.**, and Napolitano, M., “*Does the Unscented Kalman Filter Converge Faster than the Extended Kalman Filter? A Counter Example*,” AIAA Guidance Navigation and Control Conference, Boston, MA, Aug 2013.
18. Lassak, K., Rhudy, M., and **Gu, Y.**, “*On-Line Orientation Calibration of Inertial Measurement Unit Pairs using Unmanned Aerial Vehicle Flight Data*,” AIAA Guidance Navigation and Control Conference, Boston, MA, Aug 2013.
19. Mandal, T., **Gu, Y.**, Chao, H., and Rhudy, M., “*Flight Data Analysis of Pilot-Induced-Oscillations of a Remotely Piloted Aircraft*,” AIAA Guidance Navigation and Control Conference, Boston, MA, Aug 2013.
20. Larrabee, T., Chao, H., Mandal, T., Gururajan, S., **Gu, Y.**, and Napolitano, M., “*Design, Simulation, and Flight Test Validation of a UAV Ground Control Station for Aviation Safety Research and Pilot Modeling*,” AIAA Guidance Navigation and Control Conference, Boston, MA, Aug 2013.
21. **Gu, Y.**, Gururajan, S., Seanor, B., Chao, H., and Napolitano, M., “*Building Better Tools: Experimental UAV Research at West Virginia University*,” Invited, 2013 American Control Conference, Washington, DC, Jun 2013.
22. Chao, H., **Gu, Y.**, Gross, J., Guo, G., Fravolini, M.L., and Napolitano, M., “*A Comparative Study of Optical Flow and Traditional Sensors in UAV Navigation*,” 2013 American Control Conference, Washington, DC, Jun 2013.

23. Chao, H., **Gu, Y.**, Napolitano, M., “*A Survey of Optical Flow Techniques for UAV Navigation Applications*,” 2013 International Conference on Unmanned Aircraft Systems, Atlanta, GA, May 2013.
24. Tancredi, D., **Gu, Y.**, Chao, H., “*Fault Tolerant Formation Flight Control Using Different Adaptation Techniques*,” Invited, 2013 International Conference on Unmanned Aircraft Systems, Atlanta, GA, May 2013.
25. Rhudy, M., **Gu, Y.**, and Napolitano, M., “*Relaxation of Initial Error and Noise Bounds for Stability of GPS/INS Attitude Estimation*,” AIAA Guidance, Navigation, and Control Conference, Minneapolis, MN, Aug, 2012.
26. Rhudy, M., Gross, J., **Gu, Y.**, and Napolitano, M., “*Fusion of GPS and Redundant IMU Data for Attitude Estimation*,” AIAA Guidance, Navigation, and Control Conference, Minneapolis, MN, Aug, 2012.
27. Guerra, M., Rhudy, M., **Gu, Y.**, Seanor, B., and Napolitano, M., “*Mobile Ground Control Station Development for Fault Tolerant UAV Research*,” AIAA Guidance, Navigation, and Control Conference, Minneapolis, MN, Aug, 2012.
28. Vassiliadis, D., **Gu, Y.**, and Pisano, D.J., “*Ionospheric Rocket Payload Development: Project and Course*,” the American Society for Engineering Education (ASEE) Annual Conference, San Antonio, TX, Jun, 2012.
29. Gururajan, S., McGrail, A., **Gu, Y.**, Seanor, B., Napolitano, M., Prucz, J., and Phillips, K., “*Identification of Aerodynamic Parameters for a Small UAV from Flight Data*,” the 52nd Israel Annual Conference on Aerospace Sciences, Technion-I.I.T, Haifa, Israel, Mar, 2012.
30. Gururajan, S., **Gu, Y.**, Seanor, B., Prucz, J., Napolitano, M., “*Evolution of the Flight Testing Program at West Virginia University in Support of Flight Control Research*,” the 52nd Israel Annual Conference on Aerospace Sciences, Technion-I.I.T, Haifa, Israel, Mar, 2012.
31. Rhudy, M., **Gu, Y.**, Gross, J., and Napolitano, M., “*Sensitivity Analysis of EKF and UKF in GPS/INS Sensor Fusion*,” 2011 AIAA Guidance, Navigation, and Control Conference, Portland, OR, Aug, 2011.
32. Merceruio, Z., Phillips, K., **Gu, Y.**, Gururajan, S., and Napolitano, M., “*Aerodynamic and Thrust Force Modeling for a Propulsion Assisted Control Aircraft Test Bed*,” 2011 AIAA Atmospheric Flight Mechanics Conference, Portland, OR, Aug, 2011.
33. Gross, J., **Gu, Y.**, Rhudy, M., Barchesky, F., and Napolitano, M., “*On-line Modeling and Calibration of Low-Cost Navigation Sensors*,” 2011 AIAA Modeling and Simulation Technologies Conference, Portland, OR, Aug, 2011.
34. Barchesky, F., Gross, J., **Gu, Y.**, Rhudy, M., Gururajan, S., and Napolitano, M., “*Development of a GPS/INS Sensor Fusion Simulation Environment Using Flight Data*,” 2011 AIAA Modeling and Simulation Technologies Conference, Portland, OR, Aug, 2011.
35. Tancredi, D., **Gu, Y.**, Phillips, K., Gururajan, S., and Napolitano, M., “*Development of Adaptive Control Laws for Actuator Fault Accommodation*,” 2010 AIAA Guidance, Navigation, and Control, Control ID#: 814102, Toronto, Ontario, Canada, Aug. 2-5, 2010.
36. Gross, J., **Gu, Y.**, Gururajan, S., Seanor B., and Napolitano, M., “*A Comparison of Extended Kalman Filter, Sigma-Point Kalman Filter, and Particle Filter in GPS/INS Sensor Fusion*,” 2010 AIAA Guidance, Navigation, and Control, Control ID#: 810271, Toronto, Ontario, Canada, Aug. 2-5, 2010.

37. Gross, J., **Gu, Y.**, and Napolitano, M., “*A Systematic Approach for Extended Kalman Filter Tuning and Low-Cost Inertial Sensor Calibration within a GPS/INS Application*,” 2010 AIAA Guidance, Navigation, and Control, Control ID#: 810796, Toronto, Ontario, Canada, Aug. 2-5, 2010.
38. Phillips, K., Gururajan, S., Campa, G., Seanor, B., **Gu, Y.**, and Napolitano, M., “*Nonlinear Aircraft Model Identification and Validation for a Fault-Tolerant Flight Control System*,” 2010 AIAA Atmospheric Flight Mechanics Conference, Control ID#: 809261, Toronto, Ontario, Canada, Aug. 2-5, 2010.
39. Gross, J., **Gu, Y.**, Seanor, B., Gururajan, S., and Napolitano, M., “*Advanced Research Integrated Avionics (ARIA) System for Fault-Tolerant Flight Research*,” 2009 AIAA Guidance, Navigation, and Control Conference, AIAA-2009-5659, Chicago, Illinois, Aug. 10-13, 2009.
40. Phillips, K., Campa, G., Gururajan, S., Seanor, B., Napolitano, M., **Gu, Y.**, and Fravolini, M., “*Parameter Identification for Application Within a Fault-Tolerant Flight Control System*,” 2009 AIAA Atmospheric Flight Mechanics Conference, AIAA-2009-5723, Chicago, Illinois, Aug. 10-13, 2009.
41. **Gu, Y.**, Seanor, B., Gururajan, S., and Napolitano, M., “*Integrated Avionics System for Research UAVs*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-7490, Honolulu, HI, Aug 2008.
42. **Gu, Y.**, Sagoo, G. K., Seanor, B., Campa, G., Fravolini, M., and Napolitano, M., “*Curvature-Velocity-Orientation Method for UAV Collision Avoidance*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-6628, Honolulu, HI, Aug 2008.
43. Jarrell, J., **Gu, Y.**, Seanor, B., and Napolitano, M., “*Aircraft Attitude, Position, and Velocity Determination Using Sensor Fusion*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-7422, Honolulu, HI, Aug 2008.
44. Effland, J., Seanor, B., **Gu, Y.**, and Napolitano, M., “*Application of Machine Vision in Unmanned Aerial Systems for Autonomous Target Tracking*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-7251, Honolulu, HI, Aug 2008.
45. Campa, G., Mammarella, M., Cukic, B., **Gu, Y.**, Napolitano, M., and Fuller, E., “*Calculation of Bounding Sets for Neural Network Based Adaptive Control Systems*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-6778, Honolulu, HI, Aug 2008.
46. Mammarella, M., Campa, G., Fravolini, M.L., **Gu, Y.**, Seanor, B., and Napolitano, M., “*A Comparison of Optical Flow algorithms for Real Time Aircraft Guidance and Navigation*,” 2008 AIAA Guidance, Navigation, and Control Conference, AIAA 2008-7494, Honolulu, HI, Aug 2008.
47. Sagoo1, G.K., Gururajan, S., Napolitano, M., Perhinschi, M., **Gu, Y.**, Seanor, B., and Campa, G., “*Pilot-in-the-Loop Assessment of Neurally Augmented Dynamic Inversion Based Fault Tolerant Control Laws in a Motion-Based Flight Simulator*,” 2008 AIAA Modeling and Simulation Technologies Conference, AIAA 2008-6843, Honolulu, HI, Aug 2008.
48. Perhinschi, M.G., Napolitano, M.R., Campa, G., Seanor, B., Gururajan, S., and **Gu, Y.**, “*Development of Fault-Tolerant Flight Control Laws for the WVU YF-22 Model Aircraft*,” Proceedings of the AIAA Guidance, Navigation, and Control Conference, AIAA 2007-6511, Hilton Head, SC, Aug 2007.

49. **Gu, Y.**, Seanor, B., Campa, G., Napolitano, M., Rowe, L., and Gururajan, S., “*Autonomous Formation Flight: Hardware Development*,” 14th Mediterranean Conference on Control and Automation, pp.1-6, Ancona, Italy, Jun 2006.
50. Seanor, B., **Gu, Y.**, Napolitano, M., Campa, G., Gururajan, S., and Rowe, L., “*3 Aircraft Formation Flight Experiment*,” 14th Mediterranean Conference on Control and Automation, Ancona, Italy, Jun 2006.
51. Perhinschi, M., Napolitano, M., Campa, G., Seanor, B., Gururajan, S., **Gu, Y.**, “*Design and Flight Testing of Intelligent Flight Control Laws for the WVU YF-22 Model Aircraft*,” AIAA Guidance, Navigation, and Control Conference, AIAA-2005-6445, San Francisco, California, Aug, 2005.
52. Campa, G., Seanor, B., **Gu, Y.**, and Napolitano, M., “*NLDI Guidance Control Laws For Close Formation Flight*,” Proceedings of the American Control Conference, vol. 4, pp. 2972-2977, Portland, OR, Jun 2005.
53. Seanor, B., Campa, G., **Gu, Y.**, Napolitano, M., Rowe, L., and Perhinschi, M., “*Formation Flight Test Results for UAV Research Aircraft Models*,” AIAA 1st Intelligent Systems Technical Conference, AIAA 2004-6251, Chicago, IL, Sep 2004.
54. Wan, S., Campa, G., Napolitano, M., Seanor, B., and **Gu, Y.**, “*Design of Formation Control Laws for Research Aircraft Models*,” AIAA Guidance, Navigation, and Control Conference, AIAA 2003-5730, Austin, TX, Aug 2003.
55. Wan, S., Campa, G., **Gu, Y.**, Seanor, B., Gururajan, S., and Napolitano, M., “*Development of Formation Control Laws for the WVU YF-22 Aircraft Models*,” Proceedings of the American Control Conference, ACC03-AIAA0041, Denver, CO, Jun 2003.

Research Funding

Title:	Cooperative UAV Navigation using Inter-Vehicle Range and Bearing Measurements	Project Period:	01/01/2016 –12/31/2017
Sponsor:	Air Force Research Lab	Budget:	\$104,302
Role:	PI (100% share)		
Title:	Enabling Moving Target Hand-off in GPS-Denied Environments	Project Period:	05/15/2015 –02/14/2016
Sponsor:	Air Force STTR (Through STR)	Budget:	\$150,000
Role:	Co-PI (20% share)		
Title:	Cooperative Gust Sensing and Suppression for Aircraft Formation Flight – Phase II	Project Period:	03/16/2014 –09/15/2016
Sponsor:	NASA LEARN (Leading Edge Aeronautics Research for NASA)	Budget:	\$350,000
Role:	PI (70% share)		
Title:	Validation Tools for an Information Fusion based Integrated Flight Safety Monitor	Project Period:	10/01/2012 –03/30/2016
Sponsor:	NASA VSST (Vehicle Systems Safety Technologies)	Budget:	\$500,000
Role:	PI (85% share)		
Title:	Sensor Fusion and Navigation Project	Project Period:	08/15/2013 –08/14/2015
Sponsor:	Mathworks	Budget:	\$5,000 + SW
Role:	PI		
Title:	Verification and Validation of Autonomous Flight in an Unstructured and GPS-Degraded Environment	Project Period:	01/01/2013 –12/31/2013
Sponsor:	NASA IV&V, NASA WV Space Grant Consortium	Budget:	\$44,500
Role:	PI		

Title:	Cooperative Gust Sensing and Suppression for Aircraft Formation Flight	Project Period:	01/01/2013 –12/31/2013
Sponsor:	NASA LEARN	Budget:	\$200,000
Role:	Co-PI (30% share)		
Title:	Aviation Safety Research and Development	Project Period:	10/01/2010 –12/31/2012
Sponsor:	NASA Langley	Budget:	\$1,500,000
Role:	Co-PI (30% share)		
Title:	Multiple Model Adaptive Motion Planner (M-MAP)	Project Period:	07/01/2010 – 06/30/2011
Sponsor:	WVU Senate Grants	Budget:	\$14,979
Role:	PI		
Title:	Sensor Fusion and Calibration for UAV Navigation	Project Period:	05/16/2010 – 05/15/2011
Sponsor:	NASA WV EPSCoR	Budget:	\$20,000
Role:	PI		
Title:	OpeRA – Open Research Aircraft	Project Period:	05/16/2010 – 05/15/2011
Sponsor:	NASA WV Space Grant Consortium	Budget:	\$30,000
Role:	PI		
Title:	Development of Remote Sensing Capabilities for Highway Applications – Phase II	Project Period:	12/01/2009 – 11/30/2010
Sponsor:	Mid-Atlantic Universities Transportation Center (MAUTC) WV Department of Transportation/WV Division of Highway	Budget:	\$88,716
Role:	PI		
Title:	A Test Bed for Propulsion Assisted Flight Control	Project Period:	05/16/2009 – 05/15/2010
Sponsor:	NASA WV Space Grant Consortium	Budget:	\$30,000
Role:	PI		
Title:	Evaluation of Remote Sensing Aerial Systems in Existing Transportation Practices	Project Period:	12/22/2008 – 12/21/2009
Sponsor:	MAUTC, WV DOH	Budget:	\$167,422
Role:	PI		
Title:	Data Analysis for Kutta's Personal Flight Data Recorder with Display	Project Period:	07/01/2008 – 06/30/2009
Sponsor:	Kutta Technologies	Budget:	\$5,000
Role:	PI		
Title:	Development of a Small, Ultra Low Cost, and Flexible UAV Test-bed	Project Period:	05/01/2006 – 04/30/2007
Sponsor:	NASA WV Space Grant Consortium	Budget:	\$20,000
Role:	Co-PI		

Teaching Grant

Title:	Development of an Undergraduate Course in Mobile Robotics	Project Period:	05/16/2013 –05/15/2014
Sponsor:	NASA WV Space Grant Consortium, Statler College of Engineering and Mineral Resources, MAE Department, LCSEE Department.	Budget:	\$20,000
Role:	PI		

Invited Presentation (Selected)

Air Force Research Laboratory, Eglin, FL, Jan 2016

University of Kansas, Lawrence, KS, Sep 2015

Recognition Event by NASA, Sen. Joe Manchin, Sen. Shelley Moore Capito, DC, Sep 2015

NASA Jet Propulsion Laboratory, Pasadena, CA, Jul 2015

USDA National Institute of Food and Agriculture, Washington, DC, Dec 2014

NASA Ames Research Center, Mountain View, CA, Mar 2014

West Virginia High Tech Consortium Foundation, Fairmont, WV, Nov 2013
Shanghai Jiao-Tong University, Shanghai, China, Jul 2012
NASA Dryden Flight Research Center, Edwards, CA, Jan 2012
NASA Langley Research Center, Hampton, VA, Jan 2012
NASA Langley Research Center, Hampton, VA, Dec 2010
NASA Integrated Resilient Aircraft Control (IRAC) Workshop, Chicago, IL, Aug 2009
National Radio Astronomy Observatory (NRAO), Green Bank, WV, Oct 2008
Turner-Fairbank Highway Research Center, McLean, VA, April 2007

Teaching

Instructor, New Course Development, MAE 493J, MAE 593K, Co-Instructor, with Dr. Klinkhachorn, CpE 493N, CpE 591F, Planetary Rover Design, Spring 2014 (Class size: 24), Spring 2015 (Class size: 28), Spring 2016 (Class size: 20)
Instructor, MAE 211, Mechatronics (plus 4 lab sessions), Spring, 2013, (Class size: 84), Fall, 2015, (Class size: 144)
Instructor, New Course Development, MAE 493G, CpE 493M, Mobile Robotics, Fall 2013, (Class size: 18), Fall 2014 (Class size: 18)
Co-Instructor, with Dr. Sergio Tamayo and Mr. Matthew Rhudy, MAE 411, Advanced Mechatronics (Lecture & Lab), Summer, 2011 (Class size: 8)
Instructor, MAE 460, Automatic Controls, Summer, 2010, (Class size: 9)
Co-Instructor, with Dr. Vassiliadis and Dr. Pisano, PHYS 493S, SPTP: Sounding Rocket Payload Development, Spring 2010 (Class size: 10)
Co-Instructor, with Dr. Vassiliadis and Dr. Pisano, Rocksats – an undergraduate sounding rocket payload development project, Fall 2009
Instructor, New Course Development, MAE 663, Instrumentation Engineering, Spring 2008, (Class size: 18)

Graduate Students

Committee Chair:

Zach Merceruio, MS, 2011, Employer: JHU Applied Physics Laboratory
Matthew Rhudy, Ph.D., 2013, Employer: Penn State University, Reading
Caleb Rice, MS, 2015, Employer: NAVAIR
Trevor Caplinger, MS, 2015, Employer: NAVAIR
Yaohui Ding, M.S., 2015, Employer: Ph.D. student at University of Arizona
Tanmay Mandal, Ph.D. student, Expected Graduation: 2016
Kyle Lassak, Ph.D. student, Expected Graduation: 2016
Alexander Hypes, MS student, Expected Graduation: 2016
Jared Strader, MS student, Expected Graduation: 2016
Scott Harper, MS student, Expected Graduation: 2017
Chizhao Yang, Ph.D. student, Expected Graduation: 2020
Nicholas Ohi, Ph.D. student, Expected Graduation: 2021

Committee Member, Research Co-Advisor:

Jason Jarrell, MS, 2007, Employer: Northrop Grumman Corporation

Jason Gross, Ph.D., 2011, Employer: West Virginia University

Frank Barchesky, MS, 2011, Employer: AAR Corp

Daniele Tancredi, MS, 2011, Employer: MathWorks, Inc.

Committee Member:

Josh Effland, (MS, 2007); Brenton Wilburn, (MS, 2010); Trenton Larrabee, (MS, 2013);

Jennifer N. Wilburn, (Ph.D., 2013); Katie Rabidoux (Ph.D., 2015); Lei Jiang (Ph.D.,

2015); Wei Qi (Ph.D., 2016); Jeremy Hardy (M.S., 2016); Ryan Watson (M.S., 2016);

Qian Mou (M.S., 2016)

Visiting Student:

Matteo De Petrillo (2015), Paolo Roberto Di Gregorio (2016)

Student Achievement

West Virginia Student Employee of the Year: Scott Harper

WVU Student Employee of the Year: Scott Harper

NSF Graduate Research Fellowship: Nicholas Ohi

Order of Augusta (WVU's Most Prestigious Student Honor): Nicholas Ohi

3-Year University Provost Fellowship: Jared Strader

*NASA WV SGC Undergraduate Fellowship: Marc Gramlich, Scott Harper, Jared Strader,
Alexandra Augsburg*

*NASA WV SGC Graduate Fellowship: Jason Gross, Matthew Rhudy, Zach Merceruio, Caleb
Rice, Alexander Hypes, Scott Harper*

CUR's Posters on the Hill Honorable Mention: Nicholas Ohi

Honor Thesis: Jared Leggett

Media Coverage (Selected)

Television:

1. "[What Happened This Year @ NASA](#)," NASA, Dec, 2015
2. "[It Ain't Rocket Science](#)," NY1 and Time Warner Cable's local news channels, Oct, 2015
3. "[This Week @ NASA – September 25, 2015](#)," NASA, Sep, 2015
4. Live TV interview on Good Morning Washington, Sep, 2015
5. "[Rover Reloaded](#)," NASA 360, Sep, 2015
6. "[This Week @ NASA – June 19, 2015](#)," NASA, Jun, 2015
7. "[WVU Makes History at NASA Robotics Competition](#)," WBOY, Jun 2015
8. "[Rise of the Rovers](#)," NASA 360, Sep, 2014

Article:

1. "[NASA President's Budget Request](#)," [FY 2017](#), page 383, [FY 2016](#), page 351
2. "[Video Friday, Feb 2016, April 2015](#)," IEEE Spectrum Robotics Blog, Feb, 2016
3. "[Strengthening Our Space Technology Future: Snapshots of Success](#)," NASA, [Space Daily](#),
Jan, 2016

4. "[New Robot on the Block](#)," WVU Magazine, Nov. 2015
5. "[NASA, U.S. Senate Welcome Robot Challenge Winners to Washington](#)," NASA, Sep. 2015
6. "[WVU Engineering Students Honored on Capitol Hill for Historic Victory in NASA Robotics Competition](#)," WVU Today, Sep 2015
7. "[The Week In Technology, July 13-17, 2015](#)", Aviation Week, Jul 2015
8. "[NASA Funds Five Teams to Study Inventive Ideas for Aviation](#)", NASA, Jul 2015
9. "[Cataglyphis by WVU Students](#)", Robotic Magazine, Jul 2015
10. "[WVU Engineering Students Make History and Bring Home \\$100,000 Award in NASA Robotics Competition](#)," WVU Today, [Video](#), Jun 2015
11. "[Student Mechanics, Engineers win \\$100000 at NASA Competition](#)," The Daily Athenaeum, Jun 2015
12. "[NASA's Robot Event Challenges, Robots, Engineers](#)," Computer World, Jun 2015
13. "[WVU Students Grab NASA Robotics Challenge Prize](#)," Campus Technology, [i360 Education](#), Jun 2015
14. "[NASA Awards \\$100,000 to Winning Team of Robot Challenge](#)," NASA, [AUVSI](#), [NASDAQ](#), [AeroMorning](#), [Aerospace & Defense News](#), [Fire News](#), [Imperial Valley](#), [Individual](#), [Inside Unmanned Systems](#), [Robot Globe](#), [SolidWorks](#), Jun 2015
15. "[NASA Robotics Event Won by WVU Team](#)," Beacon Transcript, Jun 2015
16. "[WVU Team Gets \\$100,000 from NASA in Robotics Challenge](#)," The Associated Press, including the Herald-Dispatch, WV Public Broadcasting, The Charleston Gazette, Washington Times, The Inter-Mountain, Times Post, Times Union, WCHS-TV, Miami Herald, The South Florida Times, among others, Jun 2015
17. "[WPI Festival: Thousands Explore the Future in TouchTomorrow](#)," Telegram, Jun 2015
18. "[A Week in the Park](#)," NASA's Technology Innovation e-zine, Apr, 2015
19. "[Complexity of Sample Return Robot Competition Challenges 17 Teams](#)," NASA, June 2014
20. "[WVU Robotics Team, First-Time Competitor, Becomes Only Team to Complete First Level in NASA's Sample Return Robot Challenge This Year](#)," WVU Today, Jun, 2014
21. "[WVU Researchers Study Ways Aircraft Can Safely Operate, Save Fuel in Nation's Airspace](#)," WVU Today, Jun, 2014
22. "[WVU's Gu to Study Safety of New-Generation Aircraft](#)," WVU Today, Oct, 2012
23. "[Development of UAV-Based Remote Sensing Capabilities for Highway Applications](#)," UTC Spotlight Newsletters, U.S. DOT, Feb, 2012

Personal Interests

Amateur Astronomy; Telescope Making; Photography, Economics, Sci-Fi

Digital Footprint: [Research Website](#) – [YouTube](#) – [Google Scholar](#) – [Photography](#) – [LinkedIn](#)