Raghvendra V. Cowlagi – Curriculum Vitae

BACKGROUND

1. Education

Ph.D., Aerospace Engineering	Georgia Institute of Technology, Atlanta, GA	2011
M.Tech., Aerospace Engineering	Indian Institute of Technology Bombay, Mumbai, India	2005
B.E., Electronics Engineering	University of Mumbai, India	2003

2. Work Experience

Associate Professor	Aerospace Engineering Department, WPI	2019 –
Assistant Professor	Aerospace Engineering Program, WPI	2013 – 19
Guidance, Navigation, and Controls Engineer	Aurora Flight Sciences Corp., Cambridge, MA	2012 – 13
Postdoctoral Fellow	Massachusetts Institute of Technology, Cambridge, MA	2011 – 12
Research Assistant	Georgia Institute of Technology, Atlanta, GA	2006 – 11
Project Engineer	Indian Institute of Technology Bombay, Mumbai, India	2005 – 06
Teaching Assistant	Indian Institute of Technology Bombay, Mumbai, India	2003 – 05

3. Professional Memberships and Offices
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
- Senior Member, American Institute of Aeronautics and Astronautics (AIAA)
- Member, AIAA Guidance, Navigation, and Controls Technical Committee
- Member, American Society of Mechanical Engineers (ASME)

4. Honors and Awards Related to Scholarship

4a. National and International Recognition
- 2021 Air Force Research Lab Summer Faculty Fellowship at the Information Directorate, Rome NY
- 2016 Air Force Office of Scientific Research *Young Investigator Research Program (YIP)* award
- *Student Best Paper* award, 2009 American Control Conference, St. Louis, MO, USA
- 2005 *Aeronautical Society of India award* for Outstanding Performance in the M.Tech. degree program

4b. Within WPI
- 2017 Sigma Xi *Outstanding Junior Faculty* award
- *James Nichols Heald Research Fund,* September 2016 and September 2018
- 2016 Department of Mechanical Engineering *Excellence in Research* award

4c. Other
- Journal of Guidance, Control, and Dynamics *Excellent Reviewer* recognition, December 2016.
- *Best Presentation* awards: 2009 & 2010 American Control Conferences.
- American Automatic Control Council *Travel award* for the 2009 American Control Conference, St. Louis, MO, USA.
- IEEE-ICRA *Travel award* for the International Conference on Robotics & Automation 2012, St. Paul, MN, USA.

4d. As Advisor or Nominator
- Graduate Student Paper Competition Finalist at 2021 AIAA SciTech Guidance, Navigation, and Controls Conference to Dr. Jie Fang (former Ph.D. student)
- 2019 WPI Sigma Xi Outstanding Doctoral Dissertation Award to Dr. Benjamin Cooper (former Ph.D. student)
- First place in 2017 WPI Graduate Research Innovation Exchange (GRIE) graduate category to Dr. Benjamin Cooper (former Ph.D. student)
- 2017 AIAA GNC *Undergraduate Conference Experience travel award* to Mr. Keith P. Rockwood (AE B.S. student, class of 2017).

5. Publications

Notes:
- Names of student co-authors are underlined.
- In the controls research community, it is standard practice at all leading conferences to demand full manuscripts at the time of initial submission (instead of an extended abstract, as are widely accepted in other communities). These drafts are then subjected to peer review similar to a journal article, but no rebuttal or revisions are allowed. Due to this peer review process, papers in leading conferences in the control engineering community are considered significant contributions to the technical literature. Such papers are indicated below under the heading *"Peer-Reviewed Conference Papers."*

5a. Peer-Reviewed Journal Articles

16. P. Poudel and R. V. Cowlagi, "Near-optimal coupled sensor placement and path-planning in unknown time-varying environment," *Automatica*, submitted February 2024.
15. C. L.St. Laurent and R. V. Cowlagi, "Near-optimal task-driven sensor network configuration," *Automatica*, vol. 152, p. 110966, 2023. [Online]. Available: https://doi.org/10.1016/j.automatica.2023.110966

14. J. Fang, Z. Zhang, and R. V. Cowlagi, "Decentralized route-planning for multi-vehicle teams to satisfy a subclass of linear temporal logic specifications," *Automatica*, vol. 140, p. 110228, 2022. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0005109822000735

13. Z. Zhang, R. Du, and R. V. Cowlagi, "Randomized sampling-based trajectory optimization for uavs to satisfy linear temporal logic specifications," *Aerospace Science and Technology*, vol. 96, p. 105591, January 2020.

12. R. Du and R. V. Cowlagi, "Interactive sensing and planning for a quadrotor vehicle in partially known environments," *Journal of Guidance, Control, and Dynamics*, vol. 42, no. 7, pp. 1601–1611, July 2019.

11. B. S. Cooper and R. V. Cowlagi, "Interactive planning and sensing in unknown static environments with task-driven sensor placement," *Automatica*, vol. 105, no. 7, pp. 391–398, July 2019.

10. B. S. Cooper and R. V. Cowlagi, "Path-planning with waiting in spatiotemporally-varying threat fields," *PLoS ONE*, vol. 13, no. 8, p. e0202145, August 2018.

9. R. V. Cowlagi, J. P. Sperry, and J. C. Griffin, "Unmanned aerial vehicle trajectory optimization for executing intelligent tasks," *Journal of Guidance, Control, and Dynamics*, vol. 41, no. 6, pp. 1389–1396, June 2018.

8. R. V. Cowlagi, "Hierarchical trajectory optimization in hybrid dynamical systems," *Automatica*, vol. 77, no. 3, pp. 112–119, 2017.

7. R. V. Cowlagi and Z. Zhang, "Route guidance for satisfying temporal logic specifications on aircraft motion," *Journal of Guidance, Control, and Dynamics*, vol. 40, no. 2, pp. 390–401, 2017.

6. R. V. Cowlagi and J. H. Saleh, "Coordinabilty and consistency: Application of systems theory in accident prevention and system safety," *Journal of Loss Prevention in the Process Industries*, vol. 33, pp. 200–212, January 2015.

5. R. V. Cowlagi and P. Tsiotras, "Curvature-bounded traversability analysis for motion planning of mobile robots," *IEEE Transactions on Robotics*, vol. 30, no. 4, pp. 1011–1019, 2014.

4. R. V. Cowlagi and J. H. Saleh, "Coordinability and consistency in accident causation and prevention: Formal system-theoretic concepts for safety in multilevel systems," *Risk Analysis*, vol. 33, no. 3, pp. 420–433, 2013.

3. R. V. Cowlagi and P. Tsiotras, "Hierarchical motion planning with dynamical feasibility guarantees for mobile robotic vehicles," *IEEE Transactions on Robotics*, vol. 28, no. 2, pp. 379 – 395, 2012.

2. R. V. Cowlagi and P. Tsiotras, "Multi-resolution motion planning for autonomous agents via wavelet-based cell decompositions," *IEEE Transactions on Systems, Man and Cybernetics: Part B - Cybernetics*, vol. 42, no. 5, pp. 1455–1469, 2012.

1. J. H. Saleh, K. Marais, E. Bakolas, and R. V. Cowlagi, "Highlights from the literature on accident causation and system safety: Review of major ideas, recent contributions, and challenges," *Reliability Engineering and System Safety*, vol. 95, no. 11, pp. 1105–1116, 2011.

5b. Peer-Reviewed Conference Papers

43. P. Poudel and R. V. Cowlagi, "Coupled sensor configuration and planning in unknown dynamic environments with context-relevant mutual information-based sensor placement," in *Proceedings of the 2024 American Control Conference (ACC)*, 2024, to appear.

42. N. Bapat, R. Paffenroth, and R. V. Cowlagi, "Coupled sensor configuration and planning in unknown dynamic environments with context-relevant mutual information-based sensor placement," in *Proceedings of the 2024 American Control Conference (ACC)*, 2024, to appear.

41. C. L. St. Laurent and R. V. Cowlagi, "Coupled sensor configuration and path-planning in a multimodal threat field," in *Proceedings of the DDDAS 2022 Conference*, Cambridge, MA, USA, 6–10 October 2022.

40. C. L. St. Laurent and R. V. Cowlagi, "Coupled sensor configuration and path-planning in unknown environments with adaptive cluster analysis," in *Proceedings of the 2022 American Control Conference (ACC)*, Atlanta, GA, USA, 08-10 June 2022, pp. 4471–4476.

39. C. L. St. Laurent and R. V. Cowlagi, "Breadth-first coupled sensor configuration and path-planning in unknown environments," in *Proceedings of the 60th IEEE Conference on Decision & Control*, December 2021.

38. C. L. St. Laurent and R. V. Cowlagi, "Depth-first coupled sensor configuration and path-planning in unknown static environments," in *Proceedings of the 2021 European Control Conference*, July 2021.

37. R. V. Cowlagi, R. C. Debski, and A. M. Wyglinski, "Risk quantification for automated driving using information from V2V basic safety messages," in *2021 IEEE 93rd Vehicular Technology Conference (VTC2021-Spring)*, Helsinki, Finland, 25–28 April 2021.

36. C. L. St. Laurent and R. V. Cowlagi, "Coupled sensor configuration and path-planning in unknown static environments," in *Proceedings of the 2021 American Control Conference*, New Orleans, LA USA 26–28 May 2021.

35. J. Fang, H. Zhang, and R. V. Cowlagi, "Interactive route-planning and mobile sensing with a team of robotic vehicles in an unknown environment," in *Proceedings of the AIAA Guidance, Navigation, and Control Conference, 2021 AIAA SciTech Forum & Exposition*, 2021.

34. N. Kanthasamy, A. M. Wyglinski, and R. V. Cowlagi, "Effects of interference on beamforming-enabled vehicular networks in multipath propagation environments," in *2020 IEEE 91st Vehicular Technology Conference (VTC2020-Spring)*, Antwerp, Belgium, 25–28 May 2020.

33. B. S. Cooper and R. V. Cowlagi, "Decentralized interactive planning and sensing in an unknown spatiotemporal threat field," in *2019 Sixth Indian Control Conference (ICC)*, Hyderabad, India, 18–20 December 2019, pp. 110–115.

32. B. S. Cooper and R. V. Cowlagi, "Interactive planning and sensing in spatiotemporally varying uncertain environments," in *2019 18th European Control Conference (ECC)*, Naples, Italy, 25–28 June 2019, pp. 2058–2064.

31. Z. Zhang and R. V. Cowlagi, "A fast sampling-based optimal route-planning algorithm to satisfy linear temporal logic specifications," in *Proceedings of the Guidance, Navigation, and Control Conference, 2018 AIAA SciTech Forum & Exposition*, no. AIAA 2018-1590, Kissimmee, FL, USA, January 8–12 2018.

30. J. Fang, Z. Zhang, and R. V. Cowlagi, "Decentralized route-planning to satisfy global linear temporal logic specifications on multiple aircraft," in *Proceedings of the Guidance, Navigation, and Control Conference, 2018 AIAA SciTech Forum & Exposition*, no. AIAA 2018-1862, Kissimmee, FL, USA, January 8–12 2018.

29. B. S. Cooper and R. V. Cowlagi, "Interactive planning and sensing in uncertain environments with task-driven sensor placement," in *Proceedings of the 2018 American Control Conference*, Milwaukee, WI, USA, 27–29 June 2018, pp. 1003–1008.

28. N. Kanthasamy, R. Du, K. S. Gill, A. M. Wyglinski, and R. V. Cowlagi, "Assessment of positioning errors on v2v networks employing dual beamforming," in *Proceedings of the 2018 IEEE 88th Vehicular Technology Conference: VTC2018-Fall*, Chicago, IL, USA, 27–30 August 2018.

27. N. Kanthasamy, R. V. Cowlagi, and A. M. Wyglinski, "State estimation for mitigating positioning errors in v2v networks employing dual beamforming," in *Proceedings of the IEEE Connected and Autonomous Vehicles Symposium 2018*, Chicago, IL, USA, 27–30 August 2018.

26. R. Du and R. V. Cowlagi, "Interactive sensing and path-planning with incremental 3d path repair for a quadrotor uav in cluttered and partially known environments," in *Proceedings of the 56th IEEE Conference on Decision & Control*, Melbourne, VIC, Australia, 12–15 December 2017, pp. 933–938.

25. R. V. Cowlagi, J. T. Chambers, and N. Baltadjiev, "Route-planning for real-time safety-assured autonomous aircraft," in *Proceedings of AIAA Aviation Forum & Exposition 2016, Multidisciplinary Design Optimization*, Washington, DC, USA, June 2016.

24. J. Chambers, N. Baltadjiev, and R. V. Cowlagi, "Real-time safety-assured autonomous aircraft," in *Proceedings of AIAA Aviation Forum & Exposition 2016, Multidisciplinary Design Optimization*, Washington, DC, USA, 2016 2016.

23. R. V. Cowlagi and Z. Zhang, "Motion-planning with temporal logic specifications for a nonholonomic vehicle kinematic model," in *Proceedings of the 2016 American Control Conference*, Boston, MA, USA, 6–8 July 2016, pp. 6411 – 6416.

22. Z. Zhang and R. V. Cowlagi, "Motion-planning with global temporal logic specifications for multiple nonholonomic robotic vehicles," in *Proceedings of the 2016 American Control Conference*, Boston, MA, USA, 6–8 July 2016, pp. 7098 – 7103.

21. R. V. Cowlagi and J. P. Sperry, "Unifying artificial intelligence and trajectory optimization for UAV guidance," in *Proceedings of the Guidance, Navigation, and Control Conference, 2016 AIAA SciTech Forum & Exposition*, no. AIAA-2016-0381, San Diego, CA, USA, 4 – 8 January 2016.

20. D. Cyr, P. Guarino, J. I. Hitchen, R. Morar, J. P. Sperry, R. V. Cowlagi, D. Olinger, and D. J. Nyren, "Stabilization of helicopter sling loads with passive and active control surfaces," in *Proceedings of the 54th AIAA Aerospace Sciences Meeting, 2016 AIAA SciTech Forum & Exposition*, no. AIAA-2016-2031, San Diego, CA, USA, 2016.

19. R. V. Cowlagi, "Hierarchical hybrid control with classical planning and trajectory optimization," in *Proceedings of the 5th IFAC Conference on Analysis and Design of Hybrid Systems*, Atlanta, GA, October 14 – 16 2015, pp. 175–180.

18. Z. Zhang and R. V. Cowlagi, "Incremental path repair in hierarchical motion-planning with dynamic feasibility guarantees for mobile robotic vehicles," in *European Control Conference ECC'15*, Linz, Austria, 15–17 July 2015.

17. R. V. Cowlagi, "Multiresolution aircraft guidance in a spatiotemporally-varying threat field," in *Proceedings of the Guidance, Navigation, and Control Conference, 2015 AIAA SciTech Forum & Exposition*, no. AIAA 2015-1078, Kissimmee, Fl, USA, 5–9 January 2015.

16. R. V. Cowlagi, "Multiresolution path-planning with traversal costs based on time-varying spatial fields," in *Proceedings of the 53rd IEEE Conference on Decision & Control*, Los Angeles, CA, USA, December 15–17 2014, pp. 3745–3750.

15. R. V. Cowlagi and D. N. Kordonowy, "Geometric abstractions of vehicle dynamical models for intelligent autonomous motion," in *Proceedings of the 2014 American Control Conference*, Portland, OR., June 4 – 6 2014, pp. 4840–4845.

14. D. Allaire, J. Chambers, R. V. Cowlagi, D. Kordonowy, M. Lecerf, L. Mainini, F. Ulker, and K. Willcox, *An Offline/Online {DDDAS} Capability for Self-Aware Aerospace Vehicles*. Elsevier, 2013, vol. 18, no. 0, pp. 1959 – 1968, 2013 International Conference on Computational Science. [Online]. Available: http://www.sciencedirect.com/science/article/pii/S1877050913005085

13. J. H. Jeon, R. V. Cowlagi, S. C. Peters, S. Karaman, E. Frazzoli, P. Tsiotras, and K. Iagnemma, "Optimal motion planning with the half-car dynamical model for autonomous high-speed driving," in *Proceedings of the 2013 American Control Conference*, Washington, DC, USA, 17 – 19 Jun 2013.

12. D. N. Kordonowy, J. T. Chambers, and R. V. Cowlagi, "Contingency management for condition-aware unmanned aerial vehicles," in *Proceedings of the AIAA Infotech@Aerospace 2013 Conference*, Boston, MA, USA, 19 – 22 Aug 2013.

11. R. V. Cowlagi and P. Tsiotras, "Hierarchical motion planning with kinodynamic feasibility guarantees: Local trajectory planning via model predictive control," in *Proceedings of the 2012 IEEE International Conference on Robotics and Automation*, St. Paul, MN, USA, May 14–18 2012, pp. 4003–4008.

10. F. Alibay, V. Desaraju, R. V. Cowlagi, J. E. Duda, A. W. Johnson, and J. A. Hoffman, "Multi-vehicle lunar operations simulation using SEXTANT," in *Proceedings of the AIAA Space 2012 Conference & Exposition*, Pasadena, CA, USA, Sep 2012.

9. R. V. Cowlagi and P. Tsiotras, "Multi-resolution h-cost motion planning: A new framework for hierarchical motion planning for autonomous mobile vehicles," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots & Systems IROS 2011*, San Francisco, CA, USA, 25–30 Sep 2011, pp. 3501–3506.

8. R. V. Cowlagi and P. Tsiotras, "On the existence and synthesis of curvature-bounded paths inside nonuniform rectangular channels," in *Proceedings of the 2010 American Control Conference*, Baltimore, MD, USA, 30 Jun – 2 Jul 2010, pp. 5382 – 5387.

7. R. V. Cowlagi and P. Tsiotras, "Kinematic feasibility guarantees in geometric path planning using history-based transition costs over cell decompositions," in *Proceedings of the 2010 American Control Conference*, Baltimore, MD, USA, 30 Jun – 2 Jul 2010, pp. 5388 – 5393.

6. R. V. Cowlagi and P. Tsiotras, "Multi-resolution path planning: Theoretical analysis, efficient implementation, and extensions for dynamic environments," in *Proceedings of the 49th IEEE Conference on Decision and Control*, Atlanta, GA, 15 – 17 Dec 2010.

5. R. V. Cowlagi and J. H. Saleh, *Coordinability and Consistency in Accident Causation and System Safety: Towards a Formal Foundation of Safety in Sociotechnical and Multilevel Systems*. London, United Kingdom: Taylor & Francis, 2010, pp. 1836–1844.

4. R. V. Cowlagi and P. Tsiotras, "Shortest distance problems in graphs using history-dependent transition costs with application to kinodynamic path planning," in *Proceedings of the 2009 American Control Conference*, St. Louis, MO, USA, 9 – 12 Jun 2009, pp. 414 – 419.

3. R. V. Cowlagi and P. Tsiotras, "Multiresolution path planning with wavelets: A local replanning approach," in *Proceedings of the 2008 American Control Conference*, Seattle, WA, USA, 11–13 Jun 2008, pp. 1220–1225.

2. R. V. Cowlagi and P. Tsiotras, "Beyond quadtrees: Cell decompositions for path planning using the wavelet transform," in *Proceedings of the 46th IEEE Conference on Decision and Control*, New Orleans, LA, 12–14 Dec 2007, pp. 1392–1397.

1. S. P. Bhat and R. V. Cowlagi, "Semi-global practical stability of periodic time-varying systems via averaging: A Lyapunov approach," in *Proceedings of the 45th IEEE Conference on Decision and Control*, San Diego, CA, USA, 13 – 15 Dec 2006, pp. 361–365.

5c. Book Chapters

1. B. S. Cooper and R. V. Cowlagi, "Dynamic Sensor-Actor Interactions for Path-Planning in a Threat Field." In: Blasch E., Ravela S., Aved A. (eds) *Handbook of Dynamic Data Driven Applications Systems,* 2018. Springer, Cham. https://doi.org/10.1007/978-3-319-95504-9_19

5d. Publications at Non-Peer-Reviewed Venues

2. B. S. Cooper and R. V. Cowlagi, "Dynamic sensor-actor interactions for path-planning in a threat field," in *Proceedings of the 1st International Conference on InfoSymbiotics / DDDAS*, Hartfod, CT, Aug 2016.

1. P. Tsiotras and R. V. Cowlagi, "Achieving increased mobility and autonomy for ground vehicles over rough terrain," in *Proceedings of the 26th Army Science Conference*, Orlando, FL, USA, 6–8 Dec 2008.

6. Fellowships and Grants

6a. Fellowship and Grants Awarded at WPI

Title, Duration	Agency	Amount[1], Portion	Collaborators[2]	Personnel Supported
Coupled Sensor Configuration and Planning in Contested Environments, 08/24 – 07/29	Draper Labs	Student Fellowship	R. Paffenroth (WPI DS, Co-PI)	Maria Wojciechowski (Ph.D.)
Reconfigurable Manufacturing Systems using Collaborative Robotics, SBIR Direct to Phase II, 03/23 – 12/24	USAF SBIR	$500K ($1.25M), 100%	ALAE Solutions LLC (Prime)	Keval Shah (M.S.) Karthik Mundanad (M.S.) Marina Nelson (M.S.)
Testbed for Multimodal Sensor Configuration, Real-Time Estimation, and Optimal Control in Autonomous Systems, 04/22 – 04/23	AFOSR DURIP	$330K	N. Gatsonis (WPI AE, Co-PI) M. Demetriou (WPI AE, Co-PI)	–
Mission Effectiveness Task 4.4: Comparison-Induced Performance Metrics for AI/AA Systems, 01/22 – 01/25	Army DAC	$667K, 33%	R. Paffenroth (WPI DS, Co-PI) A. Wyglinski (WPI ECE, Co-PI)	N. Bapat (Ph.D.) A. Krishnamoorthy (Postdoc)
Making Sense: Simultaneous Sensor Configuration and Optimal Control for Autonomous Systems, 11/21 – 10/24	NSF DCSD	$530K, 100%	–	P. Poudel (Ph.D.) C. St. Laurent (Ph.D.) N. Jagdish (B.S.)
US Air Force Research Lab (Information Directorate, Rome NY) Summer Faculty Fellowship, 05/21 – 08/21	AFRL	Stipend	–	C. St. Laurent (Ph.D.)
CPS: Breakthrough: Selective Listening - Control for Connected Autonomous Vehicles in Data-Rich Environments, 04/17 – 12/21	NSF CPS	$425K, 67%	A. Wyglinski (WPI ECE, Co-PI)	R. Du (Ph.D) N. Kanthasamy (Ph.D.) R. C. Debski (M.S.)
MRI: Development of an Autonomous, Connected and Data-Driven Vehicle for Multi-Disciplinary Research and Project-Based Learning, 10/16 – 09/19	NSF CNS	$300K	X. Huang (WPI ECE, PI)	Y. Xiao (M.S.)

NSF Student Travel Grant for IEEE VTS Connected & Autonomous Vehicles Summer School at WPI, 07/16 - 06/17	NSF CNS	$5K	A. Wyglinski (WPI ECE, PI)	–
Multiscale Dynamic Data-Driven Guidance and Control for Autonomous Vehicle Networks, 01/17 – 12/29	AFOSR YIP	$360K, 100%	–	B. Cooper (Ph.D.) J. Fang (Ph.D.) C. St.Laurent (Ph.D.)
Real-time Safety-Assured Autonomous Aircraft, SBIR Phase II Option, 02/17 - 08/17	USAF SBIR	$83.5K ($250K), 100%	Aurora Flight Sciences Corp. (Prime)	Z. Zhang (Ph.D.)
Real-time Safety-Assured Autonomous Aircraft, SBIR Phase II Base, 08/15 - 02/17	USAF SBIR	$185K ($500K), 100%	Aurora Flight Sciences Corp. (Prime)	Z. Zhang (Ph.D.) R. Du (Ph.D.) B. Cooper(Ph.D.)
Real-time Safety-Assured Autonomous Aircraft, SBIR Phase I, 07/14 - 03/15	USAF SBIR	$37.4K ($150K), 100%	Aurora Flight Sciences Corp. (Prime)	Z. Zhang (Ph.D.)

1) First number indicates amount awarded to WPI; number in parantheses indicates total award amount where WPI is a sub-awardee.

2) I am PI at WPI unless noted otherwise under Collaborators.

7. Graduate Research Advised at WPI

7a. Ph.D. Dissertations

Name, Dept., Start Date	Milestones[1]			Dissertation Title	Products[1]	Funding	Currently at
	Cand.	Prop.	Def.				
Alex Ballentine, AE, 08/24						NSF	WPI student
Maria Wojciechowski, AE, 08/24						Draper	WPI student
Jeffrey DesRoches[6], AE, 08/23	04/24						USAF
Prakash Poudel, AE, 08/22	04/23	08/24			2C, 1R	NSF	WPI student
Nachiket Bapat, AE, 08/22	04/23				1C, 1R	Army-DAC	WPI student
Chase St. Laurent, ME, 08/17	01/19	10/20	05/22	Coupled Sensor Configuration and Path Planning in Uncertain Environments using Multimodal Sensors	5C, 1J	AFOSR, NSF	TMC-AMETEK
Nivetha Kanthasamy[5], ECE, 08/17	08/18	Delayed due to personal reasons			3C	NSF	WPI student
Ruixiang Du, ME, 08/15	04/16	Discontinued due to visa denial			2C, 2J	NSF	WestonRobot, Singapore
Jie Fang[4], ME, 08/15	04/16	09/17	06/20	Interactive Route-Planning And Mobile Sensing With A Team of Multiple Robotic Vehicles To Satisfy Linear Temporal Logic Specifications	2C, 1J	AFOSR	Mathworks
Benjamin Cooper[2,3], AE, 01/15	04/15	01/17	11/18	Interactive Planning and Sensing for Aircraft in Uncertain Environments with Spatiotemporally Evolving Threats	3C, 2J	AFOSR, AF-SBIR	BAE Systems
Zetian Zhang, AE, 08/13	04/14	04/16	11/18	Motion Planning and Control of Autonomous Vehicles to Satisfy Linear Temporal Logic Specifications	5C, 3J	AF-SBIR	Waymo

1) Milestones: Candidacy exam, Proposal, Defense. Products: **J** = peer-reviewed journal article, **C** = peer-reviewed conference paper, **R** = article/paper currently in review

2) 2019 WPI Sigma Xi Outstanding Doctoral Dissertation Award

3) First place in 2017 WPI Graduate Research Innovation Exchange (GRIE) graduate category

4) Finalist for 2021 AIAA GNC Conference Graduate Student Paper Competition

5) As co-advisor; main advisor Prof. A. M. Wyglinski (WPI-ECE)

6) Funded through US Air Force Academy Ph.D. Pipeline program

7b. M.S. Directed Research

M.S. and dual-degree B.S./M.S. students at WPI can partcipate in research via *directed research,* which is a fixed-duration (e.g., one or more semesters) activity for credit. Until Fall '21, WPI-AE did not support M.S. theses.

Semester	Students	Research Topics	Funding
Spr. '24	Keval Shah	Reconfigurable manufacturing systems	USAF SBIR
	Karthik Mundanad		USAF SBIR
	Marina Nelson		USAF SBIR
	Alex Ballentine	Feedback optimal control	–
	Joseph Calomo	Predictive modeling of flutter	–
Fall '23	Keval Shah	Reconfigurable manufacturing systems	USAF SBIR
Spr. '23	Keval Shah	Coupled sensor configuration and planning experiments	–
	Viren Punjabi		–
Fall '22	Alexandra Ballentine	Precision aerial delivery with thrusted parafoils	–
	Keval Shah	Coupled sensor configuration and planning experiments	–
	Viren Punjabi	Coupled sensor configuration and planning experiments	–
Spr. '22	Nikita Jagdish	Traffic data analysis for connected autonomous vehicles	NSF
Fall '21	Rebecca Debski	Trajectory planning for connected autonomous vehicles	NSF
	Nikita Jagdish	Traffic data analysis for connected autonomous vehicles	NSF
Spr. '21	William Schwend	AFRL multimodal sensor data analysis	–
	Kiernan Joyce	Precision aerial delivery with thrusted parafoils	–
Fall '20	Aleye Okhipo	Precision aerial delivery with thrusted parafoils	–
	Yin Xiao	Trajectory planning for connected autonomous vehicles	NSF
Sum. '20	Yin Xiao	Trajectory planning for connected autonomous vehicles	NSF
	Rebecca C. Debski[2]	Risk quantification for connected autonomous vehicles	NSF
Spr. '20	Zachary Zolotarevsky	Precision aerial delivery guidance for parafoils	–
	Aleye Okhipo	Precision aerial delivery with thrusted parafoils	–
	Yin Xiao	Trajectory planning for connected autonomous vehicles	–
	Conor Blomquist	Small UAV experiments	–
	Brian Ferraroti	Small UAV experiments	–
Fall '19	Zachary Zolotarevsky	Precision aerial delivery guidance for parafoils	–
	Rebecca Debski	Precision aerial delivery guidance for parafoils	–
	Evan Kelly	Trajectory planning for connected autonomous vehicles	–
	John R. O'Neill	Trajectory planning for connected autonomous vehicles	–
	Hao Wang	Trajectory planning for connected autonomous vehicles	–
	Hanqing Zhang	Sensor placement and planning to satisfy LTL specifications	–

	Yin Xiao	Intent estimation for connected autonomous vehicles	–
	Brian Ferraroti	Small UAV experimental work	–
Sum. '19	Zachary Zolotarevsky	Precision aerial delivery guidance for parafoils	AFOSR
	Evan Kelly	Trajectory planning for connected autonomous vehicles	NSF
	John R. O'Neill	Trajectory planning for connected autonomous vehicles	NSF
	Alan Olejnik	DoD applications of coupled sensor placement and planning	–
Spr. '19	Nabeel Tokatli	Data-driven wind modeling for precision aerial delivery	–
	Troy Bergeron	Precision aerial delivery guidance for parafoils	–
	Heather Cummings	Optimal trajectory generation for differential flat systems	–
	John R. O'Neill	Trajectory planning for connected autonomous vehicles	NSF
	Zeel Shah	Sensor placement and planning in spatiotempral threat fields	–
	Bailey M. Waterman	Coordinated UAV navigation	–
	Yin Xiao	Experimental work	–
Fall '18	Nabeel Tokatli	Data-driven wind modeling for precision aerial delivery	–
	Troy Bergeron	Precision aerial delivery guidance for parafoils	–
	Matias Campos	Kalman filter with delayed measurements	–
	Bailey Waterman	Coordinated UAV navigation	–
Spr. '18	Matias Campos	Kalman filter with delayed measurements	–
	Tyler Weiss	Parafoil modeling and simulation	–
	Kevin Martin	Parafoil modeling literature review	–
	Aaron Vien	Small UAV experiments	–
Fall '17	Spiridon Kasapis	Experimental work	–
	Shreyash Kumar	Traffic simulation literature review	–
	Aaron Vien	Small UAV experimental work	–
Sum. '17	Shreyash Kumar	Traffic simulation literature review	NSF
Spr. '16	James Hitchen	Sling load stabilization experiments	–
	Joseph Sperry[1]	UAV trajectory planning	–
	T. Choopojcharoen	Trajectory planning for LTL specifications	–
	Shanmuga Harikumar	Trajectory planning for a robotic arm	–
Fall '15	James Hitchen	Sling load stabilization experiments	–
	Joseph P. Sperry	UAV trajectory planning	–
Spr. '14	Payam Razavi	Trajectory planning for LTL specifications	–
	Zhaolong Liu	Trajectory optimization for the half-car dynamical model	–
	Jighjigh Tersoo-Ivase	Helicopter sling load stabilization	–
Fall '13	Payam Razavi	Trajectory planning for LTL specifications	–

1) Resultant publications: journal article [9], conference paper [21] in §5

2) Resultant publication: conference paper [37] in §5

8. Professional Presentations

- *Aerospace Engineering Department Colloquium, WPI;* November 2022
- *Department of Aerospace Engineering, Indian Institute of Technology Bombay,* Mumbai, India; July 2022; host Prof. S. R. Kumar.
- *U.S. Army Small Unmanned Aircraft Systems Technology Innovation Event,* U.S. Army Combat Capabilities Development Center-Soldier Center (CCDC); Virtual Conference; October 2020; host Mr. S. Nelson.
- *Department of Mechanical Engineering, Michigan State University,* East Lansing, MI, USA; October 2019; host Prof. S. Bopardikar.
- *Department of Mechanical Engineering, WPI,* host Prof. Y. Zheng.
- *Imperial College London, Department of Aeronautics,* South Kensington, London, UK; June 2018; host Prof. A. Paranjape.
- *Syracuse Research Corporation,* Syracuse, NY, USA; March 2018; host Dr. R. DelZoppo.
- *United Technologies Research Center,* East Hartford, CT, USA; February 2017; host Dr. S. Bopardikar.
- *Department of Mechanical and Aerospace Engineering, University at Buffalo: The State University of New York,* October 2016; host Prof. P. Singla.
- *Robotics division at Laboratoire d'analyse et d'architecture des systèmes (LAAS-CNRS),* Toulouse, France; July 2015, host Prof. T. Simeon.
- *IEEE VTS Connected and Autonomous Vehicles Summer School @ WPI,* July 2016; host Prof. A. M. Wyglinski.
- *SIAM Conference on Control and its Applications (CT15),* Paris, France; July 2015.
- *AFOSR Annual Young Investigators Research Program Meeting,* Washington, DC, USA; June 2015.
- *Robotics Engineering Colloquium, WPI;* October 2014, host Prof. S. Chernova.
- *Department of Mechanical Engineering, Tufts University,* Medford, MA, USA; March 2014, host Prof. Jason Rife.
- *2nd NSF Workshop on Formal Composition of Motion Primitives,* Philadelphia, PA, USA; April 2013.
- *United Technologies Research Center,* East Hartford, CT, USA; April 2012, host Dr. S. Kannan.
- *Department of Mechanical Engineering and Materials Sciences,* Duke University, Durham, NC, USA; March 2012, host Prof. Devendra P. Garg.
- *Halliburton Research and Development Center,* Dallas, TX, USA; February 2012, host Dr. J. Dykstra.
- *Aurora Flight Sciences Corp., Research & Development Center,* Cambridge, MA, USA; February 2012, host Dr. J. Paduano.
- *Department of Mechanical Engineering, WPI,* Worcester, MA, USA; February 2012.
- *Robotics Section, Jet Propulsion Laboratory, California Institute of Technology,* Pasadena, CA, USA; February 2012, host Dr. R. Volpe.
- *Center for Systems and Control Engineering, Indian Institute of Technology Bombay,* Mumbai, India; January 2011, host Prof. R. Banavar.
- Presentations at many of the conference venues listed under the previous subsections titled *"Publications in Peer-Reviewed Conference Proceedings"* and *"Publications at Non-Peer-Reviewed Venues."* Since 2016, my students have presented at conferences whenever possible.

9. Honors and Awards Related to Teaching

- 2019 Romeo L. Moruzzi Young Faculty Award for Innovation in Undergraduate Education.

- 2019 Morgan-Worcester Award for Distinguished Instructorship.

- 2016 AIAA Region 1 Student Conference, 2nd Prize in Team Category (as advisor): For the MQP titled *"Autonomous Quadrotor Navigation and Guidance."*

- 2014-15 Provost MQP Award in Aerospace Engineering (as co-advisor): For the project titled *"Active Control for Helicopter Sling Load Stabilization,"* co-advised with Prof. David J. Olinger (AE).

- 2014-15 Aerospace Engineering MQP Award (as advisor): For the project titled *"Autonomy Package for Unmanned Aerial Vehicles."*

10. Teaching Innovations at WPI

- New graduate courses:
  - *AE 5222 Optimal Control of Dynamical Systems* – Offered every alternate year since C-2015. When this course was introduced, it was the only course in WPI on the topic of optimal control. Renamed in AY 2021-22 to *AE 5333 Optimal Control for Aerospace Applications.*
  - *AE 5224 Air Vehicle Dynamics and Control* – Offered every alternate year from C-2016 to C-2020.
  - Replaced *AE 5224* with a new course *AE 5335 Autonomous Aerial Vehicles.* Offered in B-2021 and B-2022.
  - *AE 6093 ST: Multi-Sensor Configuration, Estimation, and Fusion* – Semester-long special topics graduate course. Offered in Spring '24.

- New undergraduate course:
  - *AE 3713 Introduction to Aerospace Control Systems* – Offered thrice from D-2020 to D-2022. Renumbered to *AE 2310* in AY 2022-23.

- Take-home experiments:
  - Introduced and implemented the idea of providing students with kits with Arduino-based electronics to perform experiments in a flexible and personalized manner.
  - Implemented in *AE 4733 (3310)* from A-2015 to A-2018. Replaced Arduino kits with smartphone-based personalized experiments since A-2019.
  - Implemented in *AE/ME 3703* in D-2019.

- Developed textbook-style lecture notes integrated for three courses: *AE 3713 (2310), AE 4733 (3310),* and *AE 4723 (4310).*

11. Courses Taught at WPI

- AE/ME 3703 Introduction to Control of Dynamical Systems
- AE 3713 Introduction to Aerospace Control Systems (Renumbered as AE 2310 in AY 2022-23)
- AE 4733 Guidance, Navigation, and Communications (Renamed as AE 3310 Fundamentals of Navigation and Communications)
- AE 4723 Aircraft Dynamics and Control (Renamed as AE 4310 Fundamentals of Aircraft Dynamics and Control in AY 2022-23)
- AE 5222 Optimal Control of Dynamical Systems (Renumbered as AE 5333 in AY 2022-23)
- AE 5224 Air Vehicle Dynamics and Control
- AE 5335 Autonomous Aerial Vehicles

- AE 6093 Special Topics: Multi-Sensor Configuration, Estimation, and Fusion

Data for the following questions on the WPI student course evaluation form are provided below:

- **Q1.** Overall rating of the quality of the course (scale of 1 – 5).
- **Q2.** Overall rating of the instructor's teaching (scale of 1 – 5).
- **Q7 (previously Q9).** Amount learned from the course (scale of 1 – 5).
- **Q19 (previously Q26B).** Total hours/week spent on coursework *outside* of scheduled lecture hours. Data provided in the tables below indicates the number of responses that indicated more than 10hrs per week.

AE/ME 3703 Introduction to Control of Dynamical Systems

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
B-2013 (Note)	43	3.38	3.88	3.57	14	35
D-2019 (Note)	57	4.69	4.84	4.56	20	32

Note: Cross-listed as AE/ME 3703; data are for both sections combined.

AE 3713 Introduction to Aerospace Control Systems

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
D-2020 (Note)	68	4.16	4.40	4.24	12	25
D-2021 (Note)	66	4.43	4.52	4.39	13	23
D-2022	85	4.58	4.70	4.48		40

Note: Remote course delivery due to COVID-19-related campus restrictions.

AE 4733 Guidance, Navigation, and Communications (last five offerings)

Term offered	#Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
A-2018	54	4.73	4.80	4.48	17	30
A-2019	63	4.51	4.71	4.26	31	41
A-2020 (Note)	64	4.24	4.28	4.43	15	21
A-2021	62	4.38	4.63	4.13	9	16
A-2022	76	4.57	4.65	4.30		23

Note: Remote course delivery due to COVID-19-related campus restrictions.

AE 4723 Aircraft Dynamics and Control

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
B-2015	31	4.38	4.58	4.42	12	26
B-2016	38	4.83	4.92	4.80	20	36
B-2017	49	4.68	4.78	4.68	23	37
B-2018	52	4.72	4.86	4.64	18	36
C-2020	77	4.92	4.88	4.68	12	25

AE 5222 Optimal Control of Dynamical Systems

AE 5333 Optimal Control for Aerospace Applications

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
C-2015 [Note 1]	17	4.69	5.00	4.69	7	13
D-2017 [Note 2]	48	4.88	4.84	4.66	26	32
D-2019	33	4.87	4.93	4.80	13	15
D-2021	27	5.00	5.00	4.80	8	10
A-2023 [Note 2]	32	4.79	4.89	4.68	19	19

Note 1: Cross-listed as AE/ME 5222; data are for both sections combined.
Note 2: Online and in-class sections; data are for both sections combined.

AE 5224 Air Vehicle Dynamics and Control

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
C-2016 [Note 1]	23	4.29	4.57	4.25	7	14
C-2018 [Note 2]	20	4.40	4.47	4.27	10	15
C-2020 [Note 2]	24	4.50	4.50	4.87	5	8

Note 1: Cross-listed as AE/ME 5224, with online and in-class sections for each; data are for all four sections combined.
Note 2: Online and in-class sections; data are for both sections combined.

AE 5335 Autonomous Aerial Vehicles

Term offered	# Enrolled	Mean Q1	Mean Q2	Mean Q7	Q19	#Responses
B-2021	27	4.38	4.62	4.31		13
B-2022	30	4.75	5.00	4.50	4	4

Note: Online and in-class sections for each offering; data are for both sections combined.

12. Undergraduate Projects Advised at WPI

12a. Interactive Qualifying Projects

The Interactive Qualifying Project (IQP) is a 1-unit (6-credit) mandatory component of the WPI undergraduate curriculum. An IQP addresses a sociotechnical topic not necessarily related to the students' major degree. Students typically complete the IQP in their junior year.

Project Title	Students and co-advisors (italicized)	Year
On the Societal Impact of Self-Driving Trucks	Eliot Fine (ECE), Justin Harris (ME), Dylan Murray (BUS) *Prof. Alexander Wyglinski (ECE)*	2017-18

12b. Major Qualifying Projects

The Major Qualifying Project (MQP) is a 1-unit (6-credit) mandatory component of the WPI undergraduate curriculum. An MQP addresses an engineering topic within the students' major degree. Students typically complete the MQP in their senior year. All MQPs are advised by faculty affiliated with the students' major degree program.

Project Title	Students and co-advisors (italicized)	Year
Coupled Sensor Configuration and Planning with UAVs	Alexandra Ballentine, Joseph Calomo, Jarrett Gulden, Peter Korfuzi, Tommy Lamar, Jake Letourneau, Marina Nelson	2023-24
Multi-point Autonomous Aerial Delivery Vehicle	Benjamin English, Anthony Gosselin, Jonathan Lazo, Trevor Shrady *Sponsored by CCDC Soldier Center, Natick, MA*	2021-22
Low-cost Quadrotor MAV Sensing Teams	Akul Agarwal, Antonio Calcagni, Nicolas Hesel, Martin Runquist	2021-22
Long-Range Precision Aerial Delivery System	Terrance Cooper, Thierry de Crespigny, Scott D'Attilio, Rebecca Debski, Christopher Ferrari, Kiernan Joyce, William Schwend, Mackenzie Warren *Sponsored by CCDC Soldier Center, Natick, MA*	2020-21
Quad-plane Design for Autonomous Cargo Delivery	Duncan Driscoll, Brian Ferrarotti, Jason Karlin, Rushab Patil	2019-20
3D Swarm Construction	Cameron A. Collins, Josue Contreras Albuja, Neel Dhanaraj, Hannan Liang, Trevor A. Lizzo, Caleb T. Wagner, *Profs. Carlo Pinciroli* (RBE), Xinming Huang (ECE), and Gregory Lewin (RBE)*	2019-20
Vertical Take-off and Landing Autonomous Aircraft Design	Quintin Barker, Troy P. Bergeron, Jacob A. Goldsberry, Romelle Jack, Benjamin H. Pasculano, Bailey M. Waterman, Tyler M. Weiss, Zachary J. Zolotarevsky *Prof. David J. Olinger*	2018-19
Design of an MAV for the 2019 SAE Aero Design Competition	Diana D. Celaj, Heather L. Cummings, Nicholas J. Cunha, Adam J. Frewin, Zachary C. Hearl, Nicholas J. Manos, Michael A. Oswald, Amelia B. Wilson *Prof. David J. Olinger**	2018-19
Remote Control Aircraft for SAE Aero Design West Competition	Ryan Capozzi, Emily Chretien, Shintaro Clanton, Elio Daci, Timothy Jones, Andrew Libby, Stephen Peccerillo, Blake Rice, John Russell, Kamyar Sajjadi, Clifford Smith, Nabeel Tokatli *Prof. David J. Olinger**	2017-18
Interactive Sensing and Planning[1]	Roger Aiuidi, Augustine Kelty, Maria Sierra Rossi, Mary Vierling, Rose Whittle, Thomas Stilwell	2017-18

Plume Analysis and Detection	Eric D Fast, Stephen M Harnais, Ryan M Wiesenberg *Profs. Michael Demetriou* and Nikolaos Gatsonis*	2016-17
Coordinated Quadrotor Unmanned Aerial Vehicles	Nicholas Green, Jonathan Griffin, Christopher Mastrangelo, Keith Rockwood, Aaron Vien	2016-17
Classroom Experiment in Longitudinal Stability and Control	Zachary Edelman, Victor Levorse, Brendan Sullivan, Zachary Wingerter *Prof. David J. Olinger*	2016-17
Autonomous Quadrotor Navigation and Guidance[2]	Jonathan Blythe, Krzysztof Borowicz, Alyssa Hollander	2015-16
Heterogeneous Network of Autonomous Vehicles	Binxin Liu, David Moore, Dylan Shields, *Prof. Michael A. Demetriou*	2015-16
Active Control for Helicopter Sling Load Stabilization[3]	Joseph Sperry, Dusty Cyr, Radu Morar, *Prof. David J. Olinger* *Sponsored by CCDC Soldier Center, Natick, MA*	2014-15
Passive Control for Helicopter Sling Load Stabilization	James Hitchen, Peter Guarino, Wesley Morawiec, *Prof. David J. Olinger** *Sponsored by CCDC Soldier Center, Natick, MA*	2014-15
Vision-based Obstacle Avoidance for Small UAVs[4]	Sam Friedman, Cy Ketchum, Kevin Hancock	2014-15
Landing Platform Deck	Travis Austin, Gabriel Diaz, Zhaolong Li *Prof. Michael A. Demetriou**	2013-14

* Main advisor for the project.

1) Honorable mention for Aerospace Engineering MQP award, 2017-18.

2) Winner of 2nd prize, Team Category, *2016 AIAA Region 1 Student Conference,* April 22-23, Worcester, MA.

3) Winner of the Provost MQP Award in Aerospace Engineering, 2014-15. This MQP resulted in a conference paper published and presented at the *AIAA SciTech 2016* conference, San Diego, CA.

4) Winner of the Aerospace Engineering MQP award, 2014-15.

12c. Summer Undergradate Research Fellowship

WPI offers a stipend to selected undergraduate students to conduct research during the summer under the Early Research Experience in E-Term (EREE) program, formerly known as the Summer Undergraduate Research Fellowship (SURF) program.

Student	Year	Research Topic
Jonathan C. Griffin[1]	2016	UAV route guidance

	Joseph P. Sperry	2014	Trajectory tracking for an autonomous aircraft in an urban environment using sonar sensors

1) Resultant publication: journal article [9] in §5

13. Independent Studies Conducted at WPI

Term	Number of students	Equivalent course
D-2020	4	*AE 4733 Guidance, Navigation, and Communications*
B-2019	1	*AE 4733 Guidance, Navigation, and Communications*
D-2019	1	*AE 3703 Introduction to Control of Dynamical Systems*
B-2016	1	*RBE 3000-level capstone experience*
D-2016	1	*ME 5000 Applied Analytical Methods in Engineering*

14. Editorial and Referee Activities

14a. Editorial Positions

- **Associate Editor,** IEEE Control Systems Society Conference Editorial Board, 2015 – present
- **Associate Editor,** *Aerospace Science and Technology* by Elsevier, 2014 – 17; 2019 – present
- **Associate Editor,** *ASME Journal of Autonomous Vehicles and Systems,* 2019 – 23
- **Associate Editor,** AIAA Guidance, Navigation, and Control Conference, 2015– present

14b. Conference Activities

- **Track Chair** with Prof. X. Wang, TU Delft, on the Graduate Student Paper Competition, 2025 AIAA Guidance, Navigation, and Control Conference, Orlando, FL, USA
- **Track Co-Chair** with Prof. S-J. Chung, CalTech, on the Graduate Student Paper Competition, 2024 AIAA Guidance, Navigation, and Control Conference, Orlando, FL, USA
- **Track Co-Chair** with Prof. A. Chakravarthy, U. Texas Arlington, on the Distributed and Cooperative Systems track, 2025 AIAA Guidance, Navigation, and Control Conference, Orlando, FL, USA
- **Track Co-Chair** with Prof. A. Chakravarthy, U. Texas Arlington, on the Distributed and Cooperative Systems track, 2024 AIAA Guidance, Navigation, and Control Conference, Orlando, FL, USA
- **Track Co-Chair** with Prof. A. Chakravarthy, U. Texas Arlington, on the Distributed and Cooperative Systems track, 2023 AIAA Guidance, Navigation, and Control Conference, National Harbor, MD, USA
- **Track Co-Chair** with Prof. J. Langelaan, Penn. State U., on the Uncertainty Quantification track, 2021 AIAA Guidance, Navigation, and Control Conference (virtual conference)
- **Track Co-Chair** Distributed and Cooperative Systems track, 2019 AIAA Guidance, Navigation, and Control Conference, San Diego, CA, USA
- **Technical Program Committee Member,** 2018 IEEE Connected and Autonomous Vehicles Symposium, Chicago, IL, USA
- **Technical Program Committee Member,** 2016 American Control Conference, Boston, MA, USA

14c. Reviewer

- **Panel reviewer for various National Science Foundation programs:**

    - Cyberphysical Systems
    - National Robotics Initiative
    - Foundations of Robotics (including CAREER panels)
    - Dynamics, Control, and Systems Diagnostics (including CAREER panels)

- **Reviewer for multiple journals including:**
  IEEE Trans. Robotics; IEEE Trans. Automatic Control; Robotics & Automation Letters; IEEE Trans. Industrial Electronics; J. Guidance, Control, and Dynamics; Aerospace Science and Technology; European J. Control; Automatica; IEEE Trans. Automation Science & Engineering; Robotics and Autonomous Systems; The Aeronautical Journal; ASME J. Dynamic Systems, Measurement, and Control; Nuclear Engineering & Technology; Risk Analysis

- **Reviewer for multiple conferences including** (all annual):
  American Control Conference; IEEE Conference on Decision and Control; IEEE International Conference on Robotics and Automation; IEEE/RSJ International Conference on Intelligent Robots and Systems; European Control Conference

14d. Thesis & Dissertation Committees

Student	Degree, Year	University	Advisor
Abudula Aihaitijiang	Ph.D., 2023	WPI Robotics Eng.	Prof. C. Onal
Lening Li	Ph.D., 2022	WPI Electrical Eng.	Prof. J. Fu
Yanjie Guo	Ph.D., 2022	Georgia Tech. Aerospace Eng.	Prof. J. H. Saleh
Jesper Karlsson	Ph.D., 2022	KTH Royal Inst. Tech. Electrical Eng.	Prof. J. Tumova
Luyao Niu	Ph.D., 2022	WPI Electrical Eng.	Prof. A. Clark
Qiqiang Hou	Ph.D., 2020	WPI Electrical Eng.	Prof. A. Clark
Seyed Loeian	Ph.D., 2019	WPI Mechanical Eng.	Prof. B. Panchapakesan
Calder Phillips-Grafflin	Ph.D., 2017	WPI Robotics Eng.	Prof. D. Berenson
Dmitry Sinyukov	Ph.D., 2017	WPI Robotics Eng.	Prof. T. Padir
Gang Li	Ph.D., 2016	WPI Mechanical Eng.	Prof. G. Fischer
Tatiana Egorova	Ph.D., 2016	WPI Aerospace Eng.	Prof. N. Gatsonis
Mahdi Heydari	Ph.D., 2015	WPI Aerospace Eng.	Prof. M. Demetriou
Fahad Khan	Ph.D., 2015	WPI Mechanical Eng.	Prof. B. Savilonis
Weijian Shang	Ph.D., 2015	WPI Mechanical Eng.	Prof. G. Fischer
Ryan Fredette	M.S., 2015	WPI Aerospace Eng.	Prof. D. Olinger
Xiaoran Chen	M.S., 2014	WPI Mechanical Eng.	Prof. C. Furlong-Vasquez
Garth Blocher	M.S., 2014	WPI Mechanical Eng.	Prof. C. Furlong-Vasquez
Yang Song	M.S., 2014	WPI Mechanical Eng.	Prof. J. Sullivan
Min Ying	M.S., 2014	WPI Mechanical Eng.	Prof. S. Nestinger

15. Department and University

15a. WPI Faculty Governance
- Board of Trustees Information Technology Task Force (2020 – 22)
- Committee on Tenure and Academic Freedom (2023 – 28)
- Committee on Academic Operations (2019 – 21)
- Committee on Information Technology Policy (2019 – 22), Chair in 2021-22
- Ad hoc faculty representative on the search for Chief Information Officer (2022)

15b. Department
- Research Coordinator, Aerospace Eng. Dept. (2024 –)
- Faculty Search Committee, Aerospace Eng. (2023, 2024)
- Departmental Tenure Committee, Aerospace Eng. (2021 – 23), Chair in 2022-23
- Undergraduate Committee, Aerospace Eng. (2016 – 20).
- Graduate Committee, Aerospace Eng. (2014 – 16).
- Graduate Committee, Mechanical Eng. (2013 – 17).
- Organizer of ME Graduate Seminar (2013 – 15).
- Organizer of AE Graduate Seminar (2015 – 16).
- Aerospace Eng. Program Committee (2013 – 14).
- WPI Graduate Research Innovation Exchange (GRIE) competition: lead judge 2017 (Robotics & Cyberphysical Systems category); judge 2014 – 2016.

16. Community

Occasional volunteer service at the *India Society of Worcester (ISW), * Shrewsbury, MA: ISW is a non-profit, volunteer-run socio-cultural organization of Indian diaspora in Massachusetts. I help in writing grant proposals on ISW's behalf to various state, federal, and private funding agencies. For example, in late 2019 / early 2020, ISW was raising funds to remodel their India Center facility in Shrewsbury. I helped in writing a proposal that was awarded approximately $30K by the MA Executive Office of Public Safety and Security for use towards modernizing the facility security equipment.