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c. Publications and scholarly presentations

c.4 Publications and scholarly presentations

c.4.1 Full articles in refereed publications

1. J. Castagno and E. Atkins, "Polylidar - Polygons From Triangular Meshes," in *IEEE Robotics and Automation Letters*, vol. 5, no. 3, pp. 4634-4641, July 2020, doi: 10.1109/LRA.2020.3002212.
2. Y. Yao and E. Atkins, "The Smart Black Box: A Value-Driven High-Bandwidth Automotive Event Data Recorder," *IEEE Transactions on Intelligent Transportation Systems*, February 2020, doi: [10.1109/TITS.2020.2971385](https://doi.org/10.1109/TITS.2020.2971385).
3. M. Stevens and E. Atkins, "Generating Airspace Geofence Boundary Layers in Wind," *Journal of Aerospace Information Systems*, AIAA, Vol. 17, No., 2, February 2020, doi: 10.2514/1.I010792.
4. H. Rastgoftar and E. Atkins, "Physics-Based Freely Scalable Continuum Deformation for UAS Traffic Coordination," *Transactions on Control of Network Systems (TCNS)*, IEEE, accepted (November 2019), doi: 10.1109/TCNS.2019.2954521.
5. P. Sharma and E. Atkins, "An Experimental Investigation of Tractor and Pusher Hexacopter Performance," *Journal of Aircraft*, AIAA, Vol. 56, No. 5, pp. 1920-1934, Sept. 2019, doi: 10.2514/1.C035319.
6. H. Rastgoftar and E. Atkins, "Safe Multi-Cluster UAV Continuum Deformation Coordination," *Aerospace Science and Technology*, Vol. 91, pp. 640-655, Aug. 2019.
7. H. Rastgoftar, E. Atkins, and D. Panagou, "Safe Multi-Quadcopter System Continuum Deformation over Moving Frames," *Transactions on Control of Network Systems*, IEEE, Vol. 6, No. 2, pp. 737-749, October 2018, doi: 10.1109/TCNS.2018.2873204.
8. M. Stevens, H. Rastgoftar, and E. Atkins, "Geofence Boundary Violation Detection in 3D Using Triangle Weight Characterization with Adjacency," *Journal of Intelligent and Robotic Systems*, Springer, September 2018, doi: 10.1007/s10846-018-0930-5.
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10. H. Rastgoftar and E. Atkins, "Cooperative Aerial Payload Transport Guided by an In Situ Human Supervisor," *Transactions on Control Systems Technology*, IEEE, Vol. 27, No. 4, pp. 1452-1467, June 2018, doi: 10.1109/TCST.2018.2832598.
11. J. Castagno and E. Atkins, "Roof Shape Classification from LiDAR and Satellite Image Data Fusion using Supervised Learning," *Sensors*, MDPI, Vol. 18, No. 11, Nov. 2018, doi: 10.3390/s18113960.
12. E. Atkins, "Aerospace Engineering Curricular Expansion in Information Systems," Book Chapter in *Advances in Aeronautical Informatics*, Springer, May 2018, doi: 10.1007/978-3-319-75058-3_10.
13. D. Asadi and E. Atkins, "Multi-Objective Weight Optimization for Trajectory Planning of an Airplane with Structural Damage," *Journal of Intelligent and Robotic*

- Systems*, Springer, Vol. 91, No. 3-4, pp. 667-690, September 2018, doi: 10.1007/s10846-017-0753-9.
14. A. Nasir, E. Atkins, and I. Kolmanovsky, "Robust Science-Optimal Spacecraft Control for Circular Orbit Missions," *Transactions on Systems, Man, and Cybernetics: Systems*, IEEE, November 2017, doi: 10.1109/TSMC.2017.2767077.
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 16. P. Di Donato and E. Atkins, "Evaluating Risk to People and Property for Aircraft Emergency Landing Planning," *Journal of Aerospace Information Systems*, AIAA, Vol. 14, No. 5, pp. 259-278, 2017, doi: 10.2514/1.I010513.
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 23. P. Di Donato, S. Balachandran, K. McDonough, E. Atkins, and I. Kolmanovsky, "Envelope Aware Flight Management for Loss of Control Prevention given Rudder Jam," *Journal of Guidance, Control, and Dynamics*, AIAA, Vol. 40, Special Issue on Aircraft Loss of Control, pp. 1027-1041, 2017, doi: 10.2514/1.G000252.
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 25. A. Ten Harmsel, I. Olson, and E. Atkins, "Emergency Flight Planning for an Energy-Constrained Multicopter," *Journal of Intelligent and Robotic Systems*, Springer, Springer, Vol. 85, Issue 1, pp. 145-165, Jan. 2017, doi: 10.1007/s10846-016-0370-z.

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Runway-Independent Aircraft,” *Journal of Aerospace Computing, Information, and Communication*, AIAA, Vol. 1, No. 7, pp. 269-287, July 2004, doi: 10.2514/1.3924.

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c.4.2 Shorter communications, letters or notes or briefs in refereed publications

1. E. Atkins, "Journal of Aerospace Information Systems Year-End Review," Editorial, *Journal of Information Systems (JAIS)*, Vol. 17, No. 1, Jan. 2020.
2. E. Atkins, "Journal of Aerospace Information Systems Year-End Review," Editorial, *Journal of Information Systems (JAIS)*, Vol. 16, No. 1, Jan. 2019.
3. E. Atkins, "Shepherding in a New Era of Integrated Aerospace Information Systems," Editorial, *Journal of Information Systems (JAIS)*, Vol. 15, No. 2, pp. 37-37, Feb. 2018, doi: 10.2514/1.I010642.
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5. K. Cohen, F. Figueroa, E. Atkins, M. Ingham, R. Doyle, S. Garg, I. Gregory, S. Obayashi, N. Nguyen, L. Blackmore, W. Truszkowski, "Introduction: Enhancing Intelligence in Aerospace Systems," *Journal of Aerospace Computing, Information, and Communication (JACIC)*, AIAA, vol. 6, no. 3, pp. 121-122, March 2009 (special issue introduction).
6. AIAA Intelligent Systems Technical Committee (E. Atkins, member and co-author), "Intelligence in Aerospace Systems", *Journal of Aerospace Computing, Information, and Communication*, vol. 1, no. 12, pp. 484-485, Dec. 2004 (special issue).

c.4.3 Refereed conference or symposium proceedings papers

1. Y. Yao, M. Xu, Y. Wang, D. Crandall, and E. Atkins, "Unsupervised Traffic Accident Detection in First-Person Videos," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Macao, China, Nov. 2019 (highly refereed).
2. A. Mathur, K. Panesar, J. Kim, E. Atkins, N. Sarter, "Paths to Autonomous Vehicle Operations for Urban Air Mobility," *AIAA Aviation Conference*, June 2019.
3. Z. Liang, H. Rastgoftar, and E. Atkins, "Multi-Quadcopter Team Leader Path Planning using Particle Swarm Optimization," *AIAA Aviation Conference*, June 2019.
4. M. Romano, P. Kuevor, D. Lukacs, O. Marshall, M. Stevens, H. Rastgoftar, J. Cutler, and E. Atkins, "Experimental Evaluation of Continuum Deformation with a Five Quadrotor Team," *American Control Conference (ACC)*, July 2019.
5. H. Rastgoftar, J.-B. Jeannin, and E. Atkins, "Formal Specification of Continuum Deformation Coordination," *American Control Conference (ACC)*, July 2019.

6. Y. Yao, M. Xu, C. Choi, D. Crandall, E. Atkins, and B. Dariush, "Egocentric Vision-based Future Vehicle Localization for Intelligent Driving Assistance," *International Conference on Robotics and Automation (ICRA)*, May 2019.
7. H. Rastgoftar and E. Atkins, "Multi-UAV Continuum Deformation Flight Optimization in Cluttered Urban Environments," *AIAA Scitech Conference*, San Diego, CA, January 2019.
8. P. Sharma, C. Ochoa, and E. Atkins, "Sensor Constrained Flight Envelope for Urban Air Mobility," *AIAA Scitech Conference*, San Diego, CA, January 2019.
9. Y. Yao and E. Atkins, "The Smart Black Box: A Value-Driven Automotive Event Data Recorder," *International Conference on Intelligent Transportation Systems (ITSC)*, IEEE, Maui, HI, November 2018.
10. H. Rastgoftar, B. Zhang, and E. Atkins, "A Data-Driven Approach for Autonomous Motion Planning and Control in Off-Road Driving Scenarios," *American Control Conference (ACC)*, IEEE, June 2018.
11. C. Ochoa, K. Meuche, and E. Atkins, "Multicopter Operations for Autonomous Assembly Applications in Manufacturing Environments," *AIAA Aviation and Aeronautics Forum*, Atlanta, GA, June 2018.
12. P. Sharma and E. Atkins, "An Experimental Investigation of Tractor and Pusher Hexacopter Performance," *AIAA Aviation and Aeronautics Forum*, Atlanta, GA, June 2018. [[Winner of the Best Student Paper Award for Atmospheric Flight Mechanics.](#)]
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14. J. Castagno and E. Atkins, "Automatic Classification of Roof Shapes for Multicopter Emergency Landing Site Selection," *AIAA Aviation and Aeronautics Forum*, Atlanta, GA, June 2018.
15. J. Castagno, C. Ochoa, and E. Atkins, "Comprehensive Risk-based Planning for Small Unmanned Aircraft System Rooftop Landing," *International Conference on Unmanned Aircraft Systems (ICUAS)*, Dallas, TX, June 2018.
16. H. Rastgoftar and E. Atkins, "Continuum Deformation of a Multiple Quadcopter Payload Delivery Team without Inter-Agent Communication," *International Conference on Unmanned Aircraft Systems (ICUAS)*, Dallas, TX, June 2018.
17. K. McDonough, J. Castagno, J. Player, and E. Atkins, "Assessing Risk of UAS Operations to People and Property," *AUVSI Xponential Technical Paper Session*, Denver, CO, May 2018.
18. Z. Renwick, D. Tilbury, and E. Atkins, "A Reinforcement Learning Based Adaptive Supervisor for Multiple Model Adaptive Estimation and Control," In *2018 IEEE International Conference on Electro/Information Technology (EIT)* (pp. 0216-0221). IEEE, May 2018, doi: 10.1109/EIT.2018.8500247.
19. M. Stevens and E. Atkins, "Geofencing in Immediate Reaches Airspace for Unmanned Aircraft System Traffic Management," *Infotech@Aerospace at Scitech*, AIAA, January 2018, doi: 10.2514/6.2018-2140.
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22. J. Holper, K. Henry, and E. Atkins, "Cyber-Physical Thermal Modeling for a Small UAS," *International Conference on Unmanned Aircraft Systems (ICUAS)*, Miami, FL, June 2017, doi: 10.1109/ICUAS.2017.7991491.

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25. H. Rastgoftar and E. Atkins, "Unmanned Vehicle Mission Planning Given Limited Sensory Information," *Proc. American Control Conference*, Seattle, WA, May 2017, doi: 10.23919/ACC.2017.7963644.
26. P. Di Donato, P. Gaskell, and E. Atkins, "Small Unmanned Aircraft Systems for Project-Based Engineering Education," *Infotech@Aerospace at Scitech*, AIAA, Grapevine, TX, 2017, doi: 10.2514/6.2017-1377.
27. C. Ochoa and E. Atkins, "Fail-Safe Navigation for Autonomous Urban Multicopter Flight," *Infotech@Aerospace at Scitech*, AIAA, Grapevine, TX, 2017, doi: 10.2514/6.2017-0222.
28. H. Rastgoftar, X. Ni, and E. Atkins, "Nonlinear System Finite-Time Output Reachability for Flight Control given Uncertain Airspeed," *Guidance, Navigation, and Control (GNC) at Scitech*, AIAA, Grapevine, TX, 2017, doi: 10.2514/6.2017-1515.
29. H. Rastgoftar and E. Atkins, "Deployment of an Arbitrary Distribution of a Multi Agent System with Finite Size on a Desired Formation," *Proceedings of the Dynamic Systems and Control Conference (DSCC)*, ASME, Minneapolis, MN, 2016, doi: 10.1115/DSCC2016-9752.
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c.4.4 Abstracts in non-refereed conference proceedings

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4. E. Atkins, "Flight Plan Management with George Jetson as Pilot," *AAAI Spring Symposium on Interaction between Humans and Autonomous Systems over Extended Operation*, AAAI, March 2004.
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c.4.5 Publications/products in popular press and online media

Dr. Atkins' research group website: <https://a2sys.engin.umich.edu/>

Recent autonomous UAS roofing video: <https://www.youtube.com/watch?v=GA445Flxkjo>

Dr. Atkins is often contacted by the popular press re: aviation safety, UAS, and space, e.g., <https://www.ieee.org/about/news/media/ieee-in-the-media.html>

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