Matthew Hale

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🖰 Lab Website
🖰 Google Scholar

Academic Employment

August 2017 – Present	**Assistant Professor** University of Florida, Gainesville, FL Department of Mechanical and Aerospace Engineering

Education

May 2017	**PhD, Electrical and Computer Engineering** Georgia Institute of Technology, Atlanta, GA *Winner of institute-wide Sigma Xi Best PhD Dissertation Award*
December 2015	**MS, Electrical and Computer Engineering** Georgia Institute of Technology, Atlanta, GA
May 2012	**BSE, Electrical Engineering,** *Summa cum laude* University of Pennsylvania, Philadelphia, PA

Research Interests

Autonomy, privacy, optimization, robotics

Research Group

Postdocs

1. Baike She, August 2022 - Present

PhD Students

1. Matthew Ubl, August 2018 - Present; **2.** Calvin Hawkins, August 2019 - Present; **3.** William Warke, August 2019 - Present; **4.** Bo Chen, May 2020 - Present; **5.** Gabriel Behrendt, July 2020 - Present; **6.** Luke Fina, August 2021 - Present; **7.** Ellie Pond, August 2021 - Present; **8.** Brandon Fallin, August 2022 - Present; **9.** Alexander Benvenuti, August 2022 - Present; **10.** April Sebok, January 2023 - Present; **11.** Ethan Butz, Beginning Fall 2023; **12.** Jack Curtis, Beginning Fall 2023; **13.** Oscar Chuy, Beginning Fall 2023; **14.** Adam Pooley, Beginning Fall 2023

Undergraduates

1. Adam Pooley, February 2021 - Present; **2.** Jason Estler, February 2021 - Present; **3.** James Zhao, January 2022 - Present; **4.** Tao Dobbins, June 2022 - Present; **5.** Jack Parker, June 2022 - Present

Lab Alumni

1. Dr. Maude Blondin, Former postdoc, Sept. 2018 - July 2020. Now Asst. Prof. at the U. Sherbrooke; **2.** Kasra Yazdani, Former PhD student, August 2017 - May 2022. Now at Samsung; **3.** Katherine Hendrickson, Former PhD student August 2019 - August 2022. Now at EpiSci; **4.** Dr. Kyle Volle, Former postdoc, Feb. 2021 - Dec. 2022. Now at Torch Technologies; **5.** Aidan Amstutz, Former master's student, April 2021 - Dec. 2022. Now at Northrop Grumman; **6.** Coleton Van Valkenburgh, Former master's student, Jan. 2022 - Dec. 2022. Now at Northrop Grumman

Awards & Honors

2023	UF MAE Department Researcher of the Year for 2022-2023 Academic Year
2023	AFOSR Young Investigator Prize (AFOSR YIP)
2022	Excellence Award for Assistant Professors (Awarded by the University of Florida to the 10 most outstanding assistant professors on campus)
2022	ONR Young Investigator Prize (ONR YIP)
2020	AFRL Summer Faculty Fellowship
2020	NSF CAREER Award

2019	UF MAE Department Teacher of the Year for 2018-2019 Academic Year
2018	Sigma Xi Best PhD Dissertation (Institute-wide) at Georgia Tech
2015	Best Presentation in Session, American Controls Conference (ACC)
2013	Oscar P. Cleaver Outstanding Graduate Student in ECE (Highest score on the ECE PhD Preliminary Exam at Georgia Tech)
2012	Otto & Jenny Krauss Fellowship

Funded Research Projects

Total funding to Hale since August 1, 2017 is $6,206,921 (out of grants with total value of $19,588,768) from Lockheed Martin, AFOSR, ONR, AFRL, USAFA, DARPA, and NSF.

Current Support Obtained as PI

1. Machine Learning Methods for Synthetic Aperture Radar Data
   Sponsor: Air Force Research Laboratory (AFRL)
   Institutions: University of Florida
   PI: Matthew Hale, co-PI: Prashant Ganesh (UF)
   Total Award: $634,614
   Project Dates: 05/13/2019 - 12/31/2022

2. CAREER: A Unified Theory of Private Control Systems
   Sponsor: National Science Foundation (NSF)
   Institutions: University of Florida
   PI: Matthew Hale (sole PI)
   Total Award: $500,000
   Project Dates: 02/01/2020 - 01/31/2025

3. Reactive Swarm Control for Dynamic Environments
   Sponsor: Office of Naval Research (ONR)
   Institutions: University of Florida
   PI: Matthew Hale (sole PI)
   Total Award: $450,198
   Project Dates: 06/01/2021 - 05/31/2024

4. Privacy-Performance Trade-Offs in Sequential Decision-Making
   Sponsor: Office of Naval Research (ONR)
   Institutions: University of Florida, University of Texas at Austin
   PI: Matthew Hale, co-PI: Ufuk Topcu (UT-Austin)
   Total Award: $789,569 (Hale share: $389,569)
   Project Dates: 07/01/2021 - 06/30/2024

5. (DURIP) Robotic Platform for Testing and Validation of Heterogeneous Autonomous Systems in Contested Environments
   Sponsor: Air Force Office of Scientific Research (AFOSR)
   Institutions: University of Florida
   PI: Matthew Hale, co-PI: Warren Dixon (UF)
   Total Award: $150,000 (Hale share: $75,000)
   Project Dates: 02/01/2022 - 01/31/2023

6. (ONR YIP) High-Performance Autonomous Behaviors for Next-Generation Naval Systems in Communication-Denied Environments
   Sponsor: Office of Naval Research (ONR)
   Institutions: University of Florida
   PI: Matthew Hale (sole PI)
   Total Award: $510,000
   Project Dates: 04/01/2022 - 03/31/2025

7. Network-Aware Coordination for Multi-Agent Systems with Limited Communication and Computation
Sponsor: Air Force Research Laboratory (AFRL)
Institutions: University of Florida
PI: Matthew Hale, co-PI: Prashant Ganesh (UF)
Total Award: $430,827 (Hale share: $367,054)
Project Dates: 9/15/2022 - 9/14/2025

8. A Unified Framework for Deceptive Autonomy
Sponsor: Air Force Research Laboratory (AFRL)
Institutions: University of Florida
PI: Matthew Hale (sole PI)
Total Award: $342,280
Project Dates: 10/1/2022-9/30/2025

9. Cadet Capstone Support for GPS-Denied Autonomy
Sponsor: United States Air Force Academy (USAFA)
Institutions: University of Florida
PI: Matthew Hale (UF)
Total Award: $250,000 (Hale share: $34,417)
Project Dates: 08/29/2022 - 08/28/2027

10. (AFOSR YIP) A Morse-Theoretic Approach to Non-Convex Optimization
Sponsor: Air Force Office of Scientific Research (AFOSR)
Institutions: University of Florida
PI: Matthew Hale (sole PI)
Total Award: $449,997 (expected)
Project Dates: 10/1/2022-9/30/2025

Current Support Obtained as co-PI

11. Center of Excellence: Assured Autonomy in Contested Environments
Sponsor: Air Force Office of Scientific Research (AFOSR)
Institutions: University of Florida (Lead), Duke University, University of California - Santa Cruz, University of Texas at Austin
PI: Warren Dixon (UF), co-PIs: Kevin Butler (UF), Norman Fitz-Coy (UF), Matthew Hale (UF), John Shea (UF), Michael Zavlanos (Duke), Miroslav Pajic (Duke), Ricardo Sanfelice (UCSC), Ufuk Topcu (UT-Austin)
Base Award (does not include plus-ups to other PIs): $6,000,000 (Hale share: $809,458)
Project Dates: 04/01/2019 - 03/31/2025

12. Novel Computational Framework for Optimal Multi-Agent Control
Sponsor: Office of Naval Research (ONR)
Institutions: University of Florida
PI: Anil V. Rao (UF), co-PI: Matthew Hale (UF)
Total Award: $599,615 (Hale share: $281,574)
Project Dates: 08/16/2019 - 08/15/2022

13. (DURIP) Validation and Verification Instrument for Autonomous Multi-Agent Systems in Outdoor Contested Environments
Sponsor: Air Force Office of Scientific Research (AFOSR)
Institutions: University of Florida
PI: Warren Dixon (UF), co-PIs: Matthew Hale (UF), Kevin Butler (UF), John Shea (UF)
Total Award: $439,210 (Hale share: $100,000)
Project Dates: 04/01/2021 - 03/31/2022

14. GATASD: Generalized Algebraic Theories Automating Scientific Discovery
Sponsor: Defense Advanced Research Projects Agency (DARPA)
Institutions: University of Florida (UF), University of Colorado at Denver (UCD), Topos Institute
PI: James Fairbanks (UF), co-PIs: Matthew Hale (UF), Robert Moore (UF), Reinhard Laubenbacher (UF), Mark Golkowski (UCD), Evan Patterson (Topos)
Total Award: $5,845,773 (Hale share: $669,174)
Project Dates: 08/17/2022 - 05/16/2024

15. Guidance Navigation and Control: Flight Laboratory Operations 2022
Sponsor: Air Force Research Laboratory (AFRL)
Institutions: University of Florida (UF)
PI: Prashant Ganesh (UF), co-PI: Matthew Hale (UF)
Total Award: $2,050,480 (Hale share: $266,215)
Project Dates: 09/13/2022 - 09/30/2025

Past Support as PI

16. TruMate - TRUst-calibrated privacy in MAchine-Human TEams
Sponsor: Lockheed Martin Advanced Technology Laboratories
Institutions: University of Florida
PI: Matthew Hale (sole PI)
Total Award: $146,205
Project Dates: 08/28/2017 - 11/24/2019

Publications

Journal Papers

Under Review

J20 M. Ubl, B. Robinson, and M.T. Hale, "Anomaly search over many sequences with switching costs," Under review. Preprint at: `https://arxiv.org/abs/2303.09647`, 2023

J19 C. Hawkins, B. Chen, K. Yazdani, and M.T. Hale, "Node and edge differential privacy for graph Laplacian spectra: Mechanisms and scaling laws," 2022, Under review. Preprint at: `https://arxiv.org/abs/2211.15366`

J18 B. Chen and M.T. Hale, "The bounded Gaussian mechanism for differential privacy," 2022, Under review. Preprint at: `https://arxiv.org/abs/2211.17230`

J17 C. Hawkins and M.T. Hale, "Differentially private formation control: Privacy and network co-design," Under review. Preprint at: `http://corelab.mae.ufl.edu/papers/private_formations_preprint.pdf`

Published & Accepted

J16 S. Stolte, K. Volle, A. Indahlastari, A. Albizu, A.J. Woods, K. Brink, M.T. Hale, and R. Fang, "DOMINO: Domino: Domain-aware loss for deep learning calibration," 2023, Accepted to *Software Impacts*. In press.

J15 B. Chen, K. Leahy, A. Jones, and M.T. Hale, "Differential privacy for symbolic systems with application to Markov chains," *Automatica*, 2022, Accepted; in press. Preprint at: `https://arxiv.org/abs/2202.03325`

J14 K. Yazdani, A. Jones, K. Leahy, and M.T. Hale, "Differentially private LQ control," *IEEE Transactions on Automatic Control*, 2022, Accepted; in press. Online at: `https://ieeexplore.ieee.org/document/9705530`.

J13 K. Hendrickson, P. Ganesh, K. Volle, P. Buzaud, K. Brink, and M.T. Hale, "Decentralized weapon-target assignment under asynchronous communications," *Journal of Guidance, Control, and Dynamics*, 2022, Accepted; in press. Online at: `https://arc.aiaa.org/doi/abs/10.2514/1.G006532`

J12 K. Hendrickson and M.T. Hale, "Totally asynchronous primal-dual convex optimization in blocks," *IEEE Transactions on Control of Network Systems*, 2022, Accepted; in press. Online at: `https://ieeexplore.ieee.org/document/9870871`

J11 K. Parker, M. Hale, and P. Barooah, "Spectral differential privacy: Application to smart meter data," *IEEE Internet of Things Journal*, vol. 9, no. 7, pp. 4987–4996, 2022

J10 K. Yazdani and M.T. Hale, "Asynchronous parallel nonconvex optimization under the Polyak-Łojasiewicz condition," *IEEE Control Systems Letters*, vol. 6, pp. 524–529, 2022

J9 M.J. Blondin and M.T. Hale, "A decentralized multi-objective optimization algorithm," *Journal of Optimization Theory and Applications*, vol. 189, no. 2, pp. 458–485, 2021

J8 M. Ubl and M.T. Hale, "Totally asynchronous large-scale quadratic programming: Regularization, convergence rates, and parameter selection," *IEEE Transactions on Control of Network Systems*, vol. 8, no. 3, pp. 1465–1476, 2021

J7 F.M. Zegers, M.T. Hale, J.M. Shea, and W.E. Dixon, "Event-triggered formation control and leader tracking with resilience to Byzantine adversaries: A reputation-based approach," *IEEE Transactions on Control of Network Systems*, vol. 8, no. 3, pp. 1417–1429, 2021

J6 P. Gohari, B. Wu, C. Hawkins, M.T. Hale, and U. Topcu, "Differential privacy on the unit simplex via the Dirichlet mechanism," *IEEE Transactions on Information Forensics and Security*, vol. 16, pp. 2326–2340, 2021

J5 B. Bjorkman, M.T. Hale, T.D. Lamkin, B. Robinson, and C. Thompson, "Nonasymptotic connectivity of random graphs and their unions," *IEEE Transactions on Control of Network Systems*, vol. 8, no. 1, pp. 391–399, 2021

J4 M.T. Hale, S.F. Ruf, T. Manzoor, and A. Muhammad, "Stability and sustainability of a networked resource consumption model," *IEEE Transactions on Network Science and Engineering*, vol. 7, no. 4, pp. 2876–2888, 2020

J3 M.T. Hale, A. Nedić, and M. Egerstedt, "Asynchronous multi-agent primal-dual optimization," *IEEE Transactions on Automatic Control (TAC)*, vol. 62, no. 9, pp. 4421–4435, 2017.

J2 M.T. Hale and M. Egerstedt, "Cloud-enabled differentially private multiagent optimization with constraints," *IEEE Transactions on Control of Network Systems*, vol. 5, no. 4, pp. 1693–1706, 2018.

J1 Y. Wardi, M. Egerstedt, and M.T. Hale, "Switched-mode systems: Gradient-descent algorithms with Armijo step sizes," *Discrete Event Dynamic Systems*, vol. 25, no. 4, pp. 571–599. 2015.

Refereed Conference Papers

Under Review

C45 Bo Chen, Calvin Hawkins, Mustafa O. Karabag, Cyrus Neary, Matthew Hale, and Ufuk Topcu, "Differential privacy in cooperative multiagent planning," Under review, 2023

C44 Skylar E. Stolte, Kyle Volle, Aprinda Indahlastari, Alejandro Albizu, Adam J. Woods, Kevin Brink, Matthew Hale, and Ruogu Fang, "Domino++: Domain-aware loss regularization for deep learning generalizability," Under review, 2023

C43 B. Fallin, C. Hawkins, B. Chen, P. Gohari, A. Benvenuti, U. Topcu, and M.T. Hale, "Differential privacy for stochastic matrices using the matrix dirichlet mechanism," Under review. Preprint at: `https://corelab.mae.ufl.edu/papers/Fallin-CDC23-TR.pdf`, 2023

C42 P. Gohari, M.T. Hale, and U. Topcu, "Privacy-engineered value decomposition networks for cooperative multi-agent reinforcement learning," Under review, 2023

C41 T. Hanks, B. She, M.T. Hale, E. Patterson, M. Klawonn, and J. Fairbanks, "A compositional framework for convex model predictive control," Under review, 2023

C40 B. She, T. Hanks, J. Fairbanks, and M.T. Hale, "Characterizing compositionality of LQR from the categorical perspective," Under review, 2023

Accepted and Published

C39 G. Behrendt, A. Soderlund, M.T. Hale, and S. Phillips, "Autonomous satellite rendezvous and proximity operations with time constrained sub-optimal model predictive control," Accepted to *IFAC World Congress 2023*. To be presented. Preprint at: `https://arxiv.org/abs/2211.11653`, 2023

C38 G. Behrendt and M.T. Hale, "A totally asynchronous algorithm for time-varying convex optimization problems," Accepted to *IFAC World Congress 2023*. To be presented. Preprint at: `https://arxiv.org/abs/2110.06705`, 2023

C37 L. Fina and M.T. Hale, "Distributed asynchronous large-scale mixed-integer linear programming via saddle point computation," Accepted to *IFAC World Congress 2023*. To be presented. Preprint at: `https://arxiv.org/abs/2211.11842`, 2023

C36 E. Pond and M.T. Hale, "Fast verification of control barrier functions via linear programming," Accepted to *IFAC World Congress 2023*. To be presented. Preprint at: `https://arxiv.org/abs/2212.00598`, 2023

C35 B. She, P.E. Pare, and M.T. Hale, "Distributed reproduction numbers of networked epidemics," in *Proceedings of the 2023 American Control Conference (ACC)*, Accepted; to appear., 2023

C34 D. Hustig-Schultz, K. Hendrickson, M.T. Hale, and Ricardo G. Sanfelice, "A totally asynchronous block-based heavy ball algorithm for convex optimization," in *Proceedings of the 2023 American Control Conference (ACC)*, Accepted; to appear., 2023

C33 M. Ubl, K. Yazdani, and M.T. Hale, "Linear regularizers enforce the strict saddle property," in *37th AAAI Conference on Artificial Intelligence*, Accepted; to appear. Preprint at: `https://arxiv.org/abs/2205.09160`, 2023

C32 M. Ubl and M.T. Hale, "Faster asynchronous nonconvex block coordinate descent with locally chosen stepsizes," in *Proceedings of the 61st IEEE Conference on Decision and Control (CDC)*, Accepted; to appear. Preprint at: `https://arxiv.org/abs/2203.11307`, 2022

C31 A. Broshkevitch, A. Hancock, A. Peters, M. Kim, M. Anderson, H. Briggs, J. Colombi, M.T. Hale, K. Volle, P. Ganesh, and J. Ramos, "An autonomous system for the rapid airfield damage repair mission," in *AIAA SciTech*, Accepted; to appear, 2023

C30 S. Stolte, K. Volle, A. Indahlastari, A. Albizu, A.J. Woods, K. Brink, M.T. Hale, and R. Fang, "DOMINO: Domain-aware model calibration in medical image segmentation," in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2022, pp. 454–463

C29 M.T. Hale and R. Sanfelice, "Challenges in optimization-based control," in *2022 2nd International Workshop on Computation-Aware Algorithmic Design for Cyber-Physical Systems (CAADCPS)*, 2022, pp. 17–18

C28 B. Chen, C. Hawkins, K. Yazdani, and M.T. Hale, "Edge differential privacy for algebraic connectivity of graphs," in *Proceedings of the 60th IEEE Conference on Decision and Control (CDC)*, 2021, pp. 2764–2769

C27 K.R. Hendrickson, D.M. Hustig-Schultz, M.T. Hale, and R.G. Sanfelice, "Exponentially converging distributed gradient descent with intermittent communication via hybrid methods," in *Proceedings of the 60th IEEE Conference on Decision and Control (CDC)*, 2021, pp. 1186–1191

C26 K. Hendrickson and M.T. Hale, "Towards totally asynchronous primal-dual convex optimization in blocks," in *Proceedings of the 59th IEEE Conference on Decision and Control (CDC)*, 2020, pp. 3663–3668

C25 C. Hawkins and M.T. Hale, "Differentially private formation control," in *Proceedings of the 59th IEEE Conference on Decision and Control (CDC)*, 2020, pp. 6260–6265

C24 P. Gohari, M. Hale, and U. Topcu, "Privacy-preserving policy synthesis in Markov decision processes," in *Proceedings of the 59th IEEE Conference on Decision and Control (CDC)*, 2020, pp. 6266–6271

C23 A.R. Coffman, M.T. Hale, and P. Barooah, "Resource allocation with local QoS: Flexible loads in the power grid," in *2020 IEEE Conference on Control Technology and Applications (CCTA)*, 2020, pp. 1060–1065

C22 P. Gohari, B. Wu, M.T. Hale, and U. Topcu, "The Dirichlet mechanism for differential privacy on the unit simplex," in *Proceedings of the 2020 American Control Conference (ACC)*, 2020, pp. 1253–1258

C21 Z. Xu, K. Yazdani, M.T. Hale, and U. Topcu, "Differentially private controller synthesis with metric temporal logic specifications," in *Proceedings of the 2020 American Control Conference (ACC)*, 2020, pp. 4745–4750.

C20 K. Yazdani and M.T. Hale, "Error bounds and guidelines for privacy calibration in differentially private Kalman filtering," in *Proceedings of the 2020 American Control Conference (ACC)*, 2020, pp. 4423–4428.

C19 F.M. Zegers, M.T. Hale, J.M. Shea, and W.E. Dixon, "Reputation-based event-triggered formation control and leader tracking with resilience to Byzantine adversaries," in *Proceedings of the 2020 American Control Conference (ACC)*, 2020, pp. 761–766

C18 M.J. Blondin and M.T. Hale, "An algorithm for multi-objective multi-agent optimization," in *Proceedings of the 2020 American Control Conference (ACC)*, 2020, pp. 1489–1494

C17 M. Ubl and M.T. Hale, "Totally asynchronous distributed quadratic programming with independent stepsizes and regularizations," in *Proceedings of the 58th IEEE Conference on Decision and Control (CDC)*, 2019, pp. 7423–7428

C16 S. Ruf, M.T. Hale, T. Manzoor, and A. Muhammad, "Design of sustainable resource consumption networks," in *Proceedings of the 58th IEEE Conference on Decision and Control (CDC)*, 2019, pp. 1692–1697

C15 M.T. Hale, Prabir Barooah, Kendall Parker, and Kasra Yazdani, "Differentially private smart metering: Implementation, analytics, and billing," in *Proceedings of the 1st ACM International Workshop on Urban Building Energy Sensing, Controls, Big Data Analysis, and Visualization (UrbSys)*, 2019, pp. 33–42.

C14 A. R. Pedram, T. Tanaka, and M.T. Hale, "Bidirectional information flow and the roles of privacy masks in cloud-based control," in *2019 IEEE Information Theory Workshop (ITW)*, 2019, pp. 1–5

C13 A. Jones, K. Leahy, and M.T. Hale, "Towards differential privacy for symbolic systems," in *Proceedings of the 2019 American Control Conference (ACC)*, 2019, pp. 372–377.

C12 M.T. Hale, T. Setter, and K. Fregene, "Trust-driven privacy in human-robot interactions," in *Proceedings of the 2019 American Control Conference (ACC)*, 2019, pp. 5234–5239.

C11 S. Hochhaus and M.T. Hale, "Asynchronous distributed optimization with heterogeneous regularizations and normalizations," in *Proceedings of the 57th IEEE Conference on Decision and Control (CDC)*, 2018, pp. 4232–4237.

C10 S. F. Ruf, M.T. Hale, T. Manzoor, and A. Muhammad, "Stability of leaderless resource consumption networks," in *Proceedings of the 57th IEEE Conference on Decision and Control (CDC)*, 2018, pp. 5334–5339.

C9 M.T. Hale, A. Jones, and K. Leahy, "Privacy in feedback: The differentially private LQG," in *Proceedings of the 2018 American Control Conference (ACC)*, 2018, pp. 3386–3391.

C8 M.T. Hale, "On the connectivity of unions of random graphs," in *Proceedings of the 56th IEEE Conference on Decision and Control (CDC)*, 2017, pp. 4422–4427.

C7 M.T. Hale and M. Egerstedt, "Convergence rate estimates for consensus over random graphs," in *Proceedings of the 2017 American Control Conference (ACC)*, 2017, pp. 1024–1029.

C6 Y. Wang, M.T. Hale, M. Egerstedt, and G. E. Dullerud, "Differentially private objective functions in distributed cloud-based optimization," in *Proceedings of the 55th IEEE Conference on Decision and Control (CDC)*, 2016, pp. 3688–3694.

C5 M.T. Hale, A. Nedić, and M. Egerstedt, "Cloud-based centralized/decentralized multi-agent optimization with communication delays," in *Proceedings of the 54th IEEE Conference on Decision and Control (CDC)*, 2015, pp. 700–705.

C4 M.T. Hale and M. Egerstedt, "Differentially private cloud-based multi-agent optimization with constraints," in *Proceedings of the 2015 American Control Conference (ACC)*, 2015, pp. 1235–1240.

C3 M.T. Hale and M. Egerstedt, "Cloud-based optimization: A quasi-decentralized approach to multi-agent coordination," in *Proceedings of the 53rd IEEE Conference on Decision and Control (CDC)*, 2014, pp. 6635–6640.

C2 M.T. Hale and Y. Wardi, "Mode scheduling under dwell time constraints in switched-mode systems," in *Proceedings of the 2014 American Control Conference (ACC)*, 2014, pp. 3954–3959.

C1 A.M. Johnson, M.T. Hale, G.C. Haynes, and D.E. Koditschek, "Autonomous legged hill and stairwell ascent," in *IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, 2011, pp. 134–142.

Teaching

Average instructor evaluation across all semesters is 4.85/5.00 (1.00 is worst, 5.00 is best).

Fall 2022 EML 4312: Control of Mechanical Engineering Systems. Covers the fundamentals of classical control, including system analysis using graphical tools, PID controller design, and aspects of state space systems. Instructor evaluation: 4.90/5.00 (response rate was 34/36 (94%))

Spring 2022 EML 4312: Control of Mechanical Engineering Systems.
Instructor evaluation: 4.90/5.00 (response rate was 99/110 (90%))

Fall 2021 EML 6934: Network Control Systems. Course covers graph-theoretic methods in multi-agent control. Course is designed for second- and third-year graduate students to expose them to the research frontier. Instructor evaluation: 4.99/5.00 (response rate was 21/21 (100%))

Spring 2021 EML 4312: Control of Mechanical Engineering Systems. (Semester fully online due to COVID-19) Instructor evaluation: 4.77/5.00 (response rate was 83/89 (93%))

Fall 2020 EML 4312: Control of Mechanical Engineering Systems. (Semester fully online due to COVID-19) Instructor evaluation: 4.83/5.00 (response rate was 44/46 (96%))

Spring 2020 EML 4312: Control of Mechanical Engineering Systems. (Semester partially online due to COVID-19) Instructor evaluation: 4.90/5.00 (response rate was 82/113 (73%))

Fall 2019 EML 6934: Network Control Systems.
Instructor evaluation: 4.75/5.00 (response rate was 17/17 (100%))

Spring 2019 EML 4312: Control of Mechanical Engineering Systems.
Instructor evaluation: 4.87/5.00 (response rate was 143/145 (98%))
MAE Department Teacher of the Year Award received during this semester.

Fall 2018	EML 4312: Control of Mechanical Engineering Systems. Instructor evaluation: 4.94/5.00 (response rate was 115/121 (95%))
Spring 2018	EML 4312: Control of Mechanical Engineering Systems Instructor evaluation: 4.65/5.00 (response rate was 115/123 (93%))

Presentations and Invited Talks

2022	Presented the talk "Faster Asynchronous Non-convex Block Coordinate Descent" at the INFORMS Annual Meeting, Indianapolis, IN, October, 2022.
2022	Presented the talk "Linear regularizers enforce the strict saddle property" at an Industrial Systems and Engineering Department Seminar, University of Florida, September 2022.
2022	Presented the talk "Linear regularizers enforce the strict saddle property" as part of the 2022 AFRL Munitions Directorate Summer Seminar Series, July, 2022.
2022	Co-presented the talk "Challenges in Optimization-Based Control" (with co-author Ricardo Sanfelice) at the 2nd Workshop on Computation-Aware Algorithmic Design for Cyber-Physical Systems as part of CPS-IoT week, May, 2022. (Virtual)
2021	Presented the talk "Differential Privacy in Feedback Systems" at an invited session at the 2021 American Control Conference (ACC) for NSF CAREER Awardees, May, 2021. (Virtual)
2020	Presented the talk "Distributed Asynchronous Optimization in Blocks" at the Kumar Lab at the University of Pennsylvania, Sept., 2020. (Virtual)
2020	Presented the talk "Distributed Optimization at the Intersection of Autonomy and Learning" as a Summer Faculty Fellow Seminar at the AFRL Munitions Directorate, July, 2020.(Virtual)
2019	Presented the talk "Design of Sustainable Resource Consumption Networks" at the 58th IEEE Conference on Decision and Control (CDC), Nice, France, Dec., 2019.
2019	Presented the talk "Differentially Private Linear-Quadratic Control" at an Aerospace Engineering and Engineering Mechanics Departmental Seminar at the University of Texas at Austin, Jan., 2019.
2018	Presented the paper "Asynchronous Distributed Optimization with Heterogeneous Regularizations and Normalizations" at the 57th IEEE Conference on Decision and Control (CDC), Miami, FL, Dec., 2018.
2018	Presented the paper "Privacy in Feedback: The Differentially Private LQG" at the 2018 American Control Conference (ACC), Milwaukee, WI, June, 2018.
2018	Presented the talk "Differentially Private LQ Control" at a Georgia Tech Decision and Control Lab (DCL) Seminar, April, 2018.
2017	Presented the paper "On the connectivity of unions of random graphs" at the 56th IEEE Conference on Decision and Control (CDC), Melbourne, Australia, Dec., 2017.
2017	Presented the talk "Mixed Centralized/Decentralized Coordination Protocols for Multi-Agent Systems" at an ECE Department Seminar at University of Utah, Feb., 2017.
2017	Presented the talk "Mixed Centralized/Decentralized Coordination Protocols for Multi-Agent Systems" at an MAE Department Seminar at the University of Florida, Feb., 2017.
2017	Presented the talk "Mixed Centralized/Decentralized Coordination Protocols for Multi-Agent Systems" at an ECE Department Seminar at the University of Illinois - Chicago, Feb., 2017.
2015	Presented the paper "Cloud-based centralized/decentralized multi-agent optimization with communication delays" at the 54th IEEE Conference on Decision and Control (CDC), Osaka, Japan, Dec., 2015.
2015	Presented the paper "Differentially private cloud-based multi-agent optimization with constraints" at the 2015 American Controls Conference (ACC), Chicago, Illinois, July, 2015. Winner of the "Best Presentation in Session" Award.
2015	Presented work on multi-agent optimization with communication delays as a Decision and Control Special Seminar at the Coordinated Sciences Lab at the University of Illinois at Urbana-Champaign, Mar., 2015.
2014	Presented the paper "Cloud-based optimization: A quasi-decentralized approach to multiagent coordination" at the 53rd IEEE Conference on Decision and Control (CDC), Los Angeles, CA, Dec., 2014.

Service and Professional Activities

Internal Service at UF

Professional Organization Memberships

Member   AIAA, ASME, IEEE, SIAM, and Sigma Xi; CSS technical committee on Networks and Communication Systems, CSS technical committee on Security and Privacy; UF Organizations: Warren B. Nelms Instute for the Connected World, Florida Institute for Cybersecurity (FICS), Florida Institute for National Security (FINS)

Journals

Reviewer   Automatica, Nonlinear Analysis: Hybrid Systems (NAHS), IEEE Transactions on Automatic Control (TAC), IEEE Transactions on Control of Network Systems (TCNS), IEEE Transactions on Control Systems Technology (TCST), IEEE Transactions on Signal and Information Processing over Networks (SIPN), IEEE Transactions on Systems, Man, and Cybernetics (TCYB), IEEE Control Systems Letters (L-CSS), IEEE Robotics and Automation Letters (RA-L), Journal of Optimization Theory and Applications (JOTA), Journal of Guidance, Control, and Dynamics (JGCD), Mathematical Programming

Conferences

General Chair   3rd Southeast Control Conference (February 2023, hosted at the University of Florida)

Member   Conference Editorial Board, IEEE Control Systems Society, July 2022-Present

Session Chair   For "Sensing and Communication" at the 2018 Air Force Science and Technology Forecasting Summit hosted at the University of Florida. Co-author of final UF Science and Technology Forecasting report delivered to the Secretary of the Air Force; American Control Conference (ACC), 2018–2020; IEEE Conference on Decision and Control (CDC), 2016

Program Committee   IEEE Conference on Decision and Control (CDC), 2018

Reviewer   IEEE Multi-Conference on Systems and Control (MSC), 2014; IFAC World Congress, 2017, 2023; American Control Conference (ACC), 2016, 2017, 2019, 2023; IEEE Conference on Decision and Control (CDC) 2015, 2016, 2017, 2018, 2019, 2022

Publicity Co-Chair   Analysis and Design of Hybrid Systems (ADHS), 2015

Proposal Reviewing

Reviewer   AFOSR Dynamical Systems and Control Theory Program, ONR Science of Autonomy Program, Year(s) omitted