Curriculum Vitae

Michael M. Zavlanos

Duke University
Department of Mechanical Engineering &
Materials Science
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RESEARCH INTERESTS

Control theory, optimization, machine learning, and AI with applications in robotics and autonomous systems, cyber-physical systems, and healthcare/medicine.

EMPLOYMENT

Director (Oct. 2024 - present)

Healthcare Systems Optimization Program, Duke AI Health

Duke University, Durham, NC

Yoh Family Professor (Mar. 2022 - present)

Dept. of Mechanical Engineering & Materials Science

Secondary Appointments: Dept. of Electrical & Computer Engineering, Dept. of Computer Science

Duke University, Durham, NC

Professor (Mar. 2022 - present)

Dept. of Mechanical Engineering & Materials Science

Secondary Appointments: Dept. of Electrical & Computer Engineering, Dept. of Computer Science

Duke University, Durham, NC

Amazon Scholar (Aug. 2021 - present)

Amazon Robotics, North Reading, MA

Yoh Family Associate Professor (Jul. 2018 - Feb. 2022)

Dept. of Mechanical Engineering & Materials Science

Secondary Appointments: Dept. of Electrical & Computer Engineering, Dept. of Computer Science

Duke University, Durham, NC

Associate Professor (Jul. 2018 - Feb. 2022)

Dept. of Mechanical Engineering & Materials Science

Secondary Appointments: Dept. of Electrical & Computer Engineering, Dept. of Computer Science Duke University, Durham, NC

Assistant Professor (Aug. 2012 - Jun. 2018)

Dept. of Mechanical Engineering & Materials Science

Secondary Appointments: Dept. of Electrical & Computer Engineering, Dept. of Computer Science

Duke University, Durham, NC

Assistant Professor (Jan. 2010 - Jul. 2012)

Dept. of Mechanical Engineering

Stevens Institute of Technology, Hoboken, NJ

Postdoctoral Researcher (Aug. 2008 - Dec. 2009)

GRASP Laboratory, Dept. of Electrical & Systems Engineering

University of Pennsylvania, Philadelphia, PA

EDUCATION

Ph.D., Electrical & Systems Engineering (Aug. 2008)

University of Pennsylvania, Philadelphia, PA

Thesis: "Distributed Control of Robotic Networks"

 $\mathbf{M.S.E.},$ Electrical & Systems Engineering (May 2005)

University of Pennsylvania, Philadelphia, PA

Diploma (M.S.E.), Mechanical Engineering (Nov. 2002)

National Technical University of Athens, Athens, Greece

HONORS & AWARDS

- 1. IEEE Senior Member, 2019.
- 2. Bass Professorship for excellence in research and teaching, Duke University, 2018.
- 3. Faculty Associate of the Duke Initiative for Science & Society for ongoing commitment to the mission and goals of Science & Society, Duke University, 2017.
- 4. **Finalist, Best Multi-Robot Systems Paper Award**, 2017 IEEE International Conference on Robotics and Automation, Singapore, 2017 (as advisor).
- 5. NAE US Frontiers of Engineering Symposium participant, 2016.
- Best Student Paper Award, 2nd IEEE Global Conference on Signal and Information Processing, Atlanta, GA, 2014 (as advisor).
- ONR Young Investigator Program Award, Office of Naval Research (ONR), 2014.
- 8. **Provost Award** in recognition of outstanding achievements in research and scholarship, Stevens Institute of Technology, 2011.
- 9. NSF Faculty Early Career Development (CAREER) Award, National Science Foundation (NSF), 2011.
- 10. **Finalist, Best Student Paper Award**, 45th IEEE Conference on Decision and Control, San Diego, CA, 2006 (as student).
- 11. Award of Academic Excellence in Engineering Sciences, Technical Chamber of Greece, 2002.

RESEARCH GROUP

Postdoctoral Fellows

- Hans Riess (Nov. 2022 Jan. 2025)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Panagiotis Vlantis (Sep. 2020 May 2021)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.

- 3. Reza Khodayi-mehr (Jun. 2019 Dec. 2020) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Now: Computer Vision Software Engineer, Intuitive, Sunnyvale, CA.
- 4. Davood Hajinezhad (Jan. 2018 Sep. 2018) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Now: Machine Learning Researcher & Developer, SAS Institute, Inc., Cary, NC.
- Meng Guo (Mar. 2016 Feb. 2017)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Now: Research Scientist, Bosch, Stuttgart, Germany.
- 6. Wann-Jiun Ma (Aug. 2015 May 2017) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Now: Director of Data Science, Stylyze, Seattle, WA.
- Soomin Lee (Sep. 2014 Jul. 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Now: Senior Research Scientist, Yahoo, Sunnyvale, CA.

Doctoral Advisees

- Manos Giannopoulos (Sep. 2023 present)
 Dept. of Computer Science, Duke University, Durham, NC.
- Pengxi Liu (Sep. 2023 present)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Xenia Konti (Sep. 2022 present)
 Dept. of Computer Science, Duke University, Durham, NC.
- Zifan Wang (Sep. 2022 present)
 Dept. of Electrical Engineering & Computer Science, KTH Royal Institute of Technology, Stockholm, Sweden (co-advised with Prof. Karl H. Johansson).
- Pingcheng Jian (Sep. 2021 present)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- 6. Yi Shen (Sep. 2019 present)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Kavinayan Sivakumar (Sep. 2018 Aug. 2023)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC, Thesis: "Adaptive Planning in Changing Policies and Environments", Recipient 2020 NSF Graduate Research Fellowship (GRF).
- Yan Zhang (Sep. 2016 Aug. 2021)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "A New Zeroth-Order Oracle for Distributed and Non-Stationary Learning", Now: Research Scientist, Amazon Inc., Seattle, WA.
- William Lucas Calkins (Sep. 2015 May 2021)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis: "Passive Acoustic Localization and Tracking with Mobile Robots", Recipient 2016 NSF Graduate Research Fellowship (GRF), Now: Controls Engineer, ASML, San Diego, CA.
- Xusheng Luo (Sep. 2017 Dec. 2020)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Scalable Control Synthesis for Multi-Robot Systems under Temporal Logic Specifications",
 Now: Research Scientist, DJI, Shenzhen, China.

- 11. Reza Khodayi-mehr (Jan. 2014 May 2019)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Model-Based Learning and Control of Advection-Diffusion Transport using Mobile Robots",
 2018-2019 Outstanding Dissertation Award in Mechanical Engineering & Materials Science, Now: Computer Vision Software Engineer, Intuitive, Sunnyvale, CA.
- 12. Yiannis Kantaros (Sep. 2013 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis: "Distributed Intermittent Connectivity Control of Mobile Robot Networks", 2017-2018
 Outstanding Dissertation Award in Mechanical Engineering & Materials Science, Now: Postdoctoral Fellow, University of Pennsylvania, Philadelphia, PA.
- 13. Charles Freundlich (Sep. 2013 Dec. 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Decentralized State Estimation using Robotic Sensor Networks", Now: Manager, Software Engineering, Tesla Motors, Palo Alto, CA.
- 14. Nikolaos Chatzipanagiotis (Sep. 2010 Aug. 2015)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Distributed Optimization Algorithms for Networked Systems", 2015-2016 Outstanding Dissertation Award in Mechanical Engineering & Materials Science, Now: Senior Research Scientist, Amazon Inc., Seattle, WA.

Masters Advisees

- 1. Evangelia Koskinioti (Sep. 2024 present)
 Dept. of Electrical and Computer Engineering, National Technical University of Athens,
 - Athens, Greece (co-advised with Prof. Giorgos Stamou).
- Konstantinos Papathanasiou (Sep. 2022 Sep. 2023)
 Dept. of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece (co-advised with Prof. Giorgos Stamou).
- Dillon Sandhu (May 2021 May 2022)
 Dept. of Computer Science, Duke University, Durham, NC.
- 4. Xenia Konti (Jan. 2021 May 2022) Dept. of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece, Thesis: "Causal Transfer Learning from Personalized Recommendation Systems" (co-advised with Prof. Giorgos Stamou).
- Jim Turner (Sep. 2020 Dec. 2021)
 Dept. of Computer Science, Duke University, Durham, NC, Thesis: "Receding Horizon Tracking of an Unknown Number of Mobile Targets using a Bearings-Only Sensor".
- Yijie (Jayson) Zhou (Sep. 2019 Dec. 2020)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Online Semi-supervised Bayesian Optimization for Socially-Aware Trajectory Planning".
- 7. Shiqi Sun (Sep. 2019 Dec. 2020) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis: "Formal Verification of Stochastic ReLU Neural Network Control System".
- 8. Chenyu Liu (Jun. 2019 Dec. 2020)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Transfer Learning in Continuous Reinforcement Learning Under Unobservable Contextual Information".
- 9. Xusheng Luo (Sep. 2017 May 2020) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Transfer Planning for Temporal Logic Tasks".

- Mu Jia (Sep. 2018 May 2020)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project:
 "Ego noise Reduction for Multichannel Acoustic Sensing from Multi Rotor Drones".
- Dongyao Lei (Sep. 2018 May 2019)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Simultaneous Localization and Mapping (SLAM) and Path Planning for Indoor Unmanned Vehicles".
- 12. Haozhe Wang (Sep. 2018 May 2019)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project:
 "Visual Navigation of Drones Using Imitation Learning Method".
- 13. Ryan Connolly (Sep. 2018 May 2019)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project:
 "Unmanned Ground Vehicle Control for Active Acoustic Impedance Mapping".
- 14. Yuankai Zhu (Sep. 2017 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Incremental Sampling-Based Motion Planning For Underwater Robots".
- 15. Yihui Feng (Sep. 2017 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "In Situ Measurement of Surface Impedance with a Ground Robot".
- 16. Fangyan Shen (Sep. 2017 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Localization and Mapping for Quadcopter Robots in GPS-Denied Environments".
- 17. Litao Qiu (Sep. 2017 May 2018) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Next-Best-View Path Planning using Mobile Robot Sensors".
- Qitong Gao (Sep. 2017 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Thesis:
 "Deep Reinforcement Learning with Temporal Logic Specifications".
- 19. Zhaoyun Xiong (Jan. 2017 May 2018) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "A Wi-Fi Experimental Platform for Decentralized Wireless Networking".
- 20. Yan Zhang (Jan. 2015 May 2016) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC, Project: "Active Landmark Localization using Mobile Stereo Vision: Experimental Validation".
- 21. Nithesh Reddy Nelvoy (May 2014 May 2015)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC, Project: "Communication Aware Motion Control of Mobile Wireless Networks: Experimental Validation".
- 22. Charles Freundlich (Sep. 2011 Nov. 2012)
 Dept. of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ, Thesis: "A Hybrid Control Approach to the Next-Best-View Problem using Stereo Vision".

Undergraduate Pratt Fellow Advisees

- 1. Cole Garda (Jan. 2018 May 2019) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Jihane Bettahi (Jan. 2017 May 2018)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- 3. Chanwook Oh (Jan. 2016 May 2017) Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.

- 4. Yang Liu (Jan. 2016 May 2017) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Tayyab Wasim (Jan. 2015 May 2016)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Tosin Omofoye (Jan. 2015 May 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 7. Negatu Asmamaw (Jan. 2014 May 2015) Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Kevin Nikolaus (Jan. 2014 May 2015)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Alex Zhu (Jan. 2013 May 2014)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Challen Herzberg-Brovold (Jan. 2013 May 2014)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.

Undergraduate Independent Study Advisees

- Lukas Dannull (Sep. 2021 May 2023)
 Dept. of Computer Science, Duke University, Durham, NC.
- Yanpeng Yuan (Sep. 2021 May 2022)
 Dept. of Computer Science, Duke University, Durham, NC.
- 3. Kenneth Marenco (Jan. 2019 Dec. 2020) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 4. Himanshu Jain (Sep. 2019 May 2019) Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- 5. Achilles Dabrowski (Sep. 2019 May 2019) Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- 6. Savini Prematilleke (Sep. 2018 May 2019) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Reed Cone Le Beaumont (Sep. 2018 May 2019)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- 8. David Laub (Sep. 2017 May 2018) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 9. Nikhil Vanderklaauw (Sep. 2017 May 2018) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Thomas Monson (Jan. 2017 May 2018)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Visrut Sudhakar (Jan. 2016 May 2017)
 Dept. of Computer Science, UNC, Chapel Hill, NC.
- 12. Addison Howenstine (Jan. 2016 May 2017)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Parker Hao (Jun. 2016 Jul. 2016)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.
- Vincent Fry (Sep. 2015 May 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- Qian Wang (Jan. 2015 May 2016)
 Dept. of Electrical & Computer Engineering, Duke University, Durham, NC.

- Alexander Ching (Jan. 2015 May 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 17. Nicholas Albertson (Jan. 2013 Aug. 2014) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 18. Davis Bolster (Jan. 2013 May 2014)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.

Visiting Students

- 1. Shuo Yang (Jun. 2020 Dec. 2020), Undergraduate Student, Dept. of Automation, School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, China.
- Miguel Aranda (May 2013 Sep. 2013), Ph.D. Student, Instituto de Investigación en Ingeniería de Aragón, Universidad de Zaragoza, Spain.
- 3. Gregory Fricke (Sep. 2012 Dec. 2013), Ph.D. Student, Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.

PUBLICATIONS

Journal Articles Accepted or Under Review

- J57. S. Wang, Z. Wang, X. Yi, M. M. Zavlanos, K. H. Johansson, and S. Hirche, "Risk-Averse Learning with Non-Stationary Distributions," *Automatica*, under review. [Online]. Available: https://arxiv.org/abs/2404.02988
- J56. Z. Wang, Y. Gao, S. Wang, M. M. Zavlanos, A. Abate, and K. H. Johansson, "Policy Evaluation in Distributional LQR," *Transactions on Automatic Control*, under review. [Online]. Available: https://arxiv.org/abs/2401.10240
- J55. Z. Wang, X. Yi, Y. Shen, M. M. Zavlanos, and K. H. Johansson, "Asymmetric Feedback Learning in Online Convex Games," *IEEE Transactions on Automatic Control*, accepted. [Online]. Available: https://arxiv.org/abs/2307.08812

Refereed Journal Publications

- J54. Z. Wang, C. Liu, T. Parisini, M. M. Zavlanos, and K. H. Johansson, "Constrained Optimization with Decision-Dependent Distributions," *IEEE Transactions on Automatic Control*, Feb. 2025, DOI: 10.1109/TAC.2025.3540441
- J53. P. Jian, E. Lee, Z. I. Bell, M. M. Zavlanos, and B. Chen, "Perception Stitching: Zero-Shot Perception Encoder Transfer for Visuomotor Robot Policies," Transactions on Machine Learning Research (TMLR), Nov. 2024.
- J52. A. K. Bozkurt, Y. Wang, M. M. Zavlanos, and M. Pajic, "Learning Optimal Strategies for Temporal Tasks in Stochastic Games," *IEEE Transactions on Automatic Control*, vol. 69, no. 11, pp. 7387-7402, Nov. 2024.
- J51. Y. Zhang, Y. Zhou, K. Ji, and M. M. Zavlanos, "Boosting One-Point Derivative-Free Online Optimization via Residual Feedback," *IEEE Transactions on Automatic Control*, vol. 69, no. 9, pp. 6309-6316, Sep. 2024.
- J50. Y. Zhang and M. M. Zavlanos, "Cooperative Multi-Agent Reinforcement Learning with Partial Observations," *IEEE Transactions on Automatic Control*, vol. 69, no. 2, pp. 968 981, Feb. 2024.
- J49. Y. Shen, P. Xu, and M. M. Zavlanos, "Wasserstein Distributionally Robust Policy Evaluation and Learning for Contextual Bandits," Transactions on Machine Learning Research (TMLR), Jan. 2024. Featured Certification

- J48. M. J. Chen, K. Sivakumar, G. A. Banyay, B. M. Golchert, T. F. Walsh, M. M. Zavlanos, and W. Aquino, "Bayesian Optimal Sensor Placement for Damage Detection In Frequency-Domain Dynamics," *Journal of Engineering Mechanics*, vol. 148, no. 12, pp. 04022078, Dec. 2022.
- J47. X. Luo and M. M. Zavlanos, "Temporal Logic Task Allocation in Heterogeneous Multi-Robot Systems," *IEEE Transactions on Robotics*, vol. 38, no. 6, pp. 3602 3621, Dec. 2022.
- J46. Y. Zhang, Y. Zhou, K. Ji, and M. M. Zavlanos, "A New One-Point Residual-Feedback Oracle for Black-Box Learning and Control," *Automatica*, vol. 136, pp. 110006, Feb. 2022.
- J45. X. Luo, Y. Kantaros, and M. M. Zavlanos, "An Abstraction-Free Method for Multi-Robot Temporal Logic Optimal Control Synthesis," *IEEE Transactions on Robotics*, vol. 37, no. 5, pp. 1487-1507, Oct. 2021.
- J44. L. Calkins, P. Baldoni, J. McMahon, C. Wilhelmi, and M. M. Zavlanos, "Bearing-Only Active Sensing under Merged Measurements," *IEEE Robotics and Automation Letters*, vol. 6, no. 3, pp. 4544-4551, Jul. 2021.
- J43. R. Khodayi-mehr, M. W. Urban, M. M. Zavlanos, and W. Aquino, "Plane Wave Elastography: A Frequency-Domain Ultrasound Shear Wave Elastography Approach," *Physics in Medicine & Biology*, vol. 66, no. 12, pp. 125017, Jun. 2021.
- J42. L. Calkins, J. Lingevitch, J. Coffin, L. McGuire, J. Geder, M. Kelly, M. M. Zavlanos, D. Sofge, and D. Lofaro, "Distance Estimation Using Self-Induced Noise of an Aerial Vehicle," *IEEE Robotics and Automation Letters*, vol. 6, no. 2, pp. 2807-2813, Apr. 2021.
- J41. X. Luo, M. Pajic, and M. M. Zavlanos, "An Optimal Graph-Search Method for Secure State Estimation," Automatica, vol. 123, pp. 109323, Jan. 2021.
- J40. Y. Zhang and M. M. Zavlanos, "Augmented Lagrangian Optimization under Fixed Point Arithmetic," *Automatica*, vol. 122, pp. 109218, Dec. 2020.
- J39. Y. Kantaros and M. M. Zavlanos, "STyLuS*: A Temporal Logic Optimal Control Synthesis Algorithm for Large-Scale Multi-Robot Systems," *International Journal of Robotics Research*, vol. 39, no. 7, pp. 812-836, Jun. 2020.
- J38. S. Paternain, S. Lee, M. M. Zavlanos, and A. Ribeiro, "Distributed Constrained Online Learning," *IEEE Transactions on Signal Processing*, vol. 68, pp. 3486-3499, Jun. 2020.
- J37. R. Khodayi-mehr and M. M. Zavlanos, "Deep Learning for Robotic Mass Transport Cloaking," IEEE Transactions on Robotics, vol. 36, no. 3, pp. 967-974, Jun. 2020.
- J36. Y. Kantaros, M. Guo, and M. M. Zavlanos, "Temporal Logic Task Planning and Intermittent Connectivity Control of Mobile Robot Networks," *IEEE Transactions on Automatic Control*, vol. 64, no. 10, pp. 4105-4120, Oct. 2019.
- J35. R. Khodayi-mehr, W. Aquino, and M. M. Zavlanos, "Model-Based Active Source Identification in Complex Environments," *IEEE Transactions on Robotics*, vol. 35, no. 3, pp. 633-652, Jun. 2019.
- J34. R. Khodayi-mehr, Y. Kantaros, and M. M. Zavlanos, "Distributed State Estimation using Intermittently Connected Robot Networks," *IEEE Transactions on Robotics*, vol. 35, no. 3, pp. 709-724, Jun. 2019.
- J33. Y. Kantaros and M. M. Zavlanos, "Sampling-Based Optimal Control Synthesis for Multi-Robot Systems under Global Temporal Tasks," *IEEE Transactions on Automatic Control*, vol. 64, no. 5, pp. 1916-1931, May 2019.
- J32. W.-J. Ma, C. Oh, Y. Liu, D. Dentcheva, and M. M. Zavlanos, "Risk-Averse Access Point Selection in Wireless Communication Networks," *IEEE Transactions on Control of Network* Systems, vol. 6, no. 1, pp. 24-36, Mar. 2019.
- J31. C. Freundlich, Y. Zhang, and M. M. Zavlanos, "Distributed Hierarchical Control for State Estimation with Robotic Sensor Networks," *IEEE Transactions on Control of Network Systems*, vol. 5, no. 4, pp. 2023-2035, Dec. 2018.

- J30. Y. Kantaros, B. Johnson, S. Chowdhury, D. J. Cappelleri, and M. M. Zavlanos, "Control of Magnetic Microrobot Teams for Temporal Micromanipulation Tasks," *IEEE Transactions on Robotics*, vol. 34, no. 6, pp. 1472-1489, Dec. 2018.
- J29. M. Guo and M. M. Zavlanos, "Probabilistic Motion Planning under Temporal Tasks and Soft Constraints," *IEEE Transactions on Automatic Control*, vol. 63, no. 12, pp. 4051-4066, Dec. 2018.
- J28. S. Lee and M. M. Zavlanos, "Approximate Projection Methods for Decentralized Optimization with Functional Constraints," *IEEE Transactions on Automatic Control*, vol. 63, no. 10, pp. 3248-3260, Oct. 2018.
- J27. M. Guo and M. M. Zavlanos, "Multi-Robot Data Gathering under Buffer Constraints and Intermittent Communication," *IEEE Transactions on Robotics*, vol. 34, no. 4, pp. 1082-1097, Aug. 2018.
- J26. S. Lee, N. Chatzipanagiotis, and M. M. Zavlanos, "Complexity Certification of a Distributed Augmented Lagrangian Method," *IEEE Transactions on Automatic Control*, vol. 63, no. 3, pp. 827-834, Mar. 2018.
- J25. C. Freundlich, S. Lee, and M. M. Zavlanos, "Distributed Active State Estimation with User-Specified Accuracy," *IEEE Transactions on Automatic Control*, vol. 63, no. 2, pp. 418-433, Feb. 2018.
- J24. C. Freundlich, Y. Zhang, A. Zhu, P. Mordohai, and M. M. Zavlanos, "Controlling a Robotic Stereo Camera under Image Quantization Noise," *International Journal of Robotics Research*, vol. 36, no. 12, pp. 1268-1285, Oct. 2017.
- J23. N. Chatzipanagiotis and M. M. Zavlanos, "On the Convergence of a Distributed Augmented Lagrangian Method for Non-Convex Optimization," *IEEE Transactions on Automatic Control*, vol. 62, no. 9, pp. 4405-4420, Sep. 2017.
- J22. V. M. Preciado and M. M. Zavlanos, "Distributed Network Design for Laplacian Eigenvalue Placement," *IEEE Transactions on Control of Network Systems*, vol. 4, no. 3, pp. 598-609, Sep. 2017.
- J21. Y. Kantaros and M. M. Zavlanos, "Distributed Intermittent Connectivity Control of Mobile Robot Networks," *IEEE Transactions on Automatic Control*, vol. 62, no. 7, pp. 3109-3121, Jul. 2017.
- J20. N. Chatzipanagiotis and M. M. Zavlanos, "Distributed Scheduling of Network Connectivity using Mobile Access Point Robots," *IEEE Transactions on Robotics*, vol. 32, no. 6, pp. 1333-1346, Dec. 2016.
- J19. M. Aranda, G. López-Nicolás, C. Sagüés, and M. M. Zavlanos, "Distributed Formation Stabilization using Relative Position Measurements in Local Coordinates," *IEEE Transactions on Automatic Control*, vol. 61, no. 12, pp. 3925-3935, Dec. 2016.
- J18. Y. Kantaros and M. M. Zavlanos, "Global Planning and Communication Control for Multi-Robot Networks in Complex Environments," *IEEE Transactions on Robotics*, vol. 32, no. 5, pp. 1045-1061, Oct. 2016.
- J17. N. Chatzipanagiotis and M. M. Zavlanos, "A Distributed Algorithm for Convex Constrained Optimization under Noise," *IEEE Transactions on Automatic Control*, vol. 61, no. 9, pp. 2496-2511, Sep. 2016.
- J16. Y. Kantaros and M. M. Zavlanos, "Distributed Communication-Aware Coverage Control by Mobile Sensor Networks," Automatica, vol. 63, pp. 209-220, Jan. 2016.
- J15. N. Chatzipanagiotis, D. Dentcheva, and M. M. Zavlanos, "An Augmented Lagrangian Method for Distributed Optimization," *Mathematical Programming*, vol. 152, no. 1-2, pp. 405-434, Aug. 2015.

- J14. M. Aranda, G. López-Nicolás, C. Sagüés, and M. M. Zavlanos, "Coordinate-Free Formation Stabilization Based on Relative Position Measurements," *Automatica*, vol. 57, pp. 11-20, Jul. 2015.
- J13. N. Chatzipanagiotis, Y. Liu, A. P. Petropulu, and M. M. Zavlanos, "Distributed Cooperative Beamforming in Multi-Source Multi-Destination Clustered Systems," *IEEE Transactions on Signal Processing*, vol. 62, no. 23, pp. 6105-6117, Dec. 2014.
- J12. D. Cappelleri, D. Efthymiou, A. Goswami, N. Vitoroulis, and M. M. Zavlanos, "Towards Mobile Microrobot Swarms for Additive Micromanufacturing," *International Journal of Advanced Robotic Systems*, vol. 11, no. 150, pp. 1-14, Sep. 2014.
- J11. M. Guo, M. M. Zavlanos, and D. V. Dimarogonas, "Controlling the Relative Agent Motion in Multi-Agent Formation Stabilization," *IEEE Transactions on Automatic Control*, vol. 59, no. 3, pp. 820-826, Mar. 2014.
- J10. M. M. Zavlanos, A. Ribeiro, and G. J. Pappas, "Network Integrity in Mobile Robotic Networks," IEEE Transactions on Automatic Control, vol. 58, no. 1, pp. 3-18, Jan. 2013.
- J9. M. M. Zavlanos, M. B. Egerstedt, and G. J. Pappas, "Graph Theoretic Connectivity Control of Mobile Robot Networks," *Proceedings of the IEEE*, Special Issue on Swarming in Natural and Engineered Systems, vol. 99, no. 9, pp. 1525-1540, Sep. 2011.
- J8. M. M. Zavlanos, A. A. Julius, S. P. Boyd, and G. J. Pappas, "Inferring Stable Genetic Networks from Steady-State Data," *Automatica*, vol. 47, no. 6, pp. 1113-1122, Jun. 2011, Special Issue on Systems Biology.
- J7. M. M. Zavlanos, H. G. Tanner, A. Jadbabaie, and G. J. Pappas, "Hybrid Control for Connectivity Preserving Flocking." *IEEE Transactions on Automatic Control*, vol. 54, no. 12, pp. 2869-2875, Dec. 2009.
- J6. A. A. Julius, M. M. Zavlanos, S. P. Boyd, and G. J. Pappas, "Genetic Network Identification using Convex Programming," *IET Systems Biology*, vol. 3, no. 3, pp. 155-166, May 2009.
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- C3. M. M. Zavlanos and G. J. Pappas, "Controlling Connectivity of Dynamic Graphs," in Proc. 44th IEEE Conference on Decision and Control (CDC), Seville, Spain, Dec. 2005, pp. 6388-6393.
- C2. D. V. Dimarogonas, M. M. Zavlanos, S. G. Loizou, and K. J. Kyriakopoulos, "Decentralized Motion Control of Multiple Holonomic Agents under Input Constraints," in *Proc. 42nd IEEE Conference on Decision and Control (CDC)*, Maui, Hawaii, Dec. 2003, pp. 3390-3395.
- C1. M. M. Zavlanos and K. J. Kyriakopoulos, "Decentralized Motion Control of Multiple Mobile Agents," in Proc. 11th Mediterranean Conference on Control and Automation (MED), Rhodes, Greece, 2003.

Refereed Book Chapters

- B4. Y. Kantaros, M. M. Zavlanos, and G. J. Pappas, "Connectivity of Dynamic Graphs," in *Encyclopedia of Systems and Control*, T. Samad and J. Baillieul, Eds., Springer-Verlag London, 2020, pp. 317-323.
- B3. M. M. Zavlanos and G. J. Pappas, "Connectivity of Dynamic Graphs," in *Encyclopedia of Systems and Control*, T. Samad and J. Baillieul, Eds., Springer-Verlag London, 2015, pp. 317-323.
- B2. N. Michael, M. M. Zavlanos, V. Kumar and G. J. Pappas, "Maintaining Connectivity in Mobile Robot Networks," in *Experimental Robotics*, ser. Springer Tracts in Advanced Robotics, O. Khatib, V. Kumar, and G. J. Pappas, Eds., Springer Berlin Heidelberg, 2009, vol. 54, pp. 117-126.
- B1. M. M. Zavlanos and G. J. Pappas, "Distributed Hybrid Control for Multiple Pursuer Multiple Evader Games," in *Hybrid Systems: Computation and Control*, ser. Lecture Notes in Computer Science, A. Bemporad, A. Bicchi, and G. Buttazzo, Eds., Springer Berlin Heidelberg, 2007, vol. 4416, pp. 787-789.

Published Conference and Workshop Abstracts

- A3. C. Freundlich, P. Mordohai, and M. M. Zavlanos, "A Hybrid Control Approach to the Next-Best-View Problem using Stereo Vision," in 16th International Conference on Hybrid Systems: Computation and Control (HSCC), Philadelphia, PA, Apr. 2013.
- A2. G. Foderaro, S. Ferrari, and M. M. Zavlanos, "A Decentralized Kernel Density Estimation Approach to Distributed Robot Path Planning," in 26th Annual Conference on Neural Information Processing Systems (NeurIPS), Workshop on Bayesian Nonparametric Models for Reliable Planning and Decision-Making Under Uncertainty, Lake Tahoe, NV, Dec. 2012.
- A1. A. A. Julius, M. M. Zavlanos, S. P. Boyd, and G. J. Pappas, "Genetic Network Identification using Convex Programming," in 8th International Conference on Systems Biology (ICSB), Los Angeles, CA, Oct. 2007.

Theses and Dissertations

- Th2. M. M. Zavlanos, "Distributed Control of Robotic Networks," Ph.D. dissertation, University of Pennsylvania, Dept. of Electrical & Systems Engineering, Aug. 2008.
- Th1. M. M. Zavlanos, "Decentralized Motion Control of Multiple Mobile Agents," Diploma (M.S.E.) thesis, National Technical University of Athens, Dept. of Mechanical Engineering, Nov. 2002.

Technical Reports

- T4. P. C. Hammer, D. J. Cappelleri, and M. M. Zavlanos, "TortoiseBot: Low-cost ROS-Based Mobile 3D Mapping Platform," Technical Report No. TR2-DC, Dept. of Mechanical Engineering, Stevens Institute of Technology, Feb. 2012.
- T3. A. A. Julius, M. M. Zavlanos, S. P. Boyd, and G. J. Pappas, "Genetic Network Identification using Convex Programming," Technical Report MS-CIS-07-20, Dept. of Computer & Information Science, University of Pennsylvania, Jul. 2007.
- T2. M. M. Zavlanos and G. J. Pappas, "Distributed Connectivity Control of Mobile Networks," Technical Report MS-CIS-07-08, Dept. of Computer & Information Science, University of Pennsylvania, Mar. 2007.
- T1. D. V. Dimarogonas, S. G. Loizou, K. J. Kyriakopoulos, and M. M. Zavlanos, "A Feedback Stabilization and Collision Avoidance Scheme for Multiple Independent Non-Point Agents," Technical Report No. 01-04, Control Systems Lab, Dept. of Mechanical Engineering, National Technical University of Athens, 2004.

INVITED LECTURES, SEMINARS, COLLOQUIA

- IEMS Seminar, "A New One-Point Oracle for Derivative-Free Optimization and Learning", Northwestern University, Evanston, IL, Oct. 2022.
- 2. *MAE Seminar*, "Scalable and AI-Enabled Autonomous Systems", University of California San Diego, San Diego, CA, Jan. 2022.
- 3. CoE Seminar, "Scalable and AI-Enabled Autonomous Systems", Peking University, Beijing, China, Jan. 2022.
- 4. ECE Seminar, "Scalable and AI-Enabled Autonomous Systems", University of California Santa Cruz, Santa Cruz, CA, Oct. 2021.
- 5. MEMS Seminar, "Scalable and AI-Enabled Autonomous Systems: From Theory to Real-World", Duke University, Durham, NC, Sep. 2021.
- 6. Amazon Robotics Seminar, "Scalable Multi-Robot Planning under High-Level Collaborative Tasks", Amazon Robotics, North Reading, MA, Mar. 2021.
- 7. Computation and Reasoning Laboratory (Corelab) Seminar, "Distributed, Non-stationary, and Causal Reinforcement Learning", National Technical University of Athens, Athens, Greece, Dec. 2020.
- 8. Control Engineering Group Seminar, "From Large-Scale Complex Robot Planning to Fully Distributed Learning for Control", University of Oxford, Oxford, UK, Jul. 2020.
- 9. Division of Decision and Control Systems Seminar, "Intermittently Connected Robot Networks", KTH Royal Institute of Technology, Stockholm, Sweden, Dec. 2019.
- Division of Decision and Control Systems Seminar, "A Sampling-Based Framework for Large-Scale Temporal Logic Optimal Control Synthesis", KTH Royal Institute of Technology, Stockholm, Sweden, Dec. 2019.
- 11. Acoustics Division Seminar, "Intermittent Communication Control in Mobile Robot Networks", US Naval Research Labs, Washington, DC, Oct. 2019.
- 12. DRIV Seminar, "Model Checking Meets Robot Planning: A Sampling-Based Framework for Large-Scale Optimal Temporal Logic Synthesis", Duke University, Durham, NC, Nov. 2018.
- 13. Workshop on Large-Scale Optimization, "Distributed Optimization Algorithms for Networked Systems", Allerton Conference on Communication, Control and Computing, Allerton Park, Monticello, IL, Oct. 2017.

- DIMACS Workshop on Distributed Optimization, Information Processing, and Learning, "Distributed Optimization Algorithms for Networked Systems", Rutgers University, Piscataway, NJ, Aug. 2017.
- 15. Workshop on Optimization under Uncertainty and Data-Driven Science and Engineering, "Distributed Optimization Algorithms for Networked Systems", Duke University, Durham, NC, Apr. 2017.
- Workshop on Assured Autonomy, "Intermittent Communication Control in Mobile Robot Networks", Florida Institute on National Security (FINS), University of Florida, Gainesville, FL, Apr. 2017.
- 17. Dream Course Seminar, "Distributed Estimation and Control in Mobile Robot Networks", University of Oklahoma, Norman, OK, Feb. 2017.
- 18. Control Systems Seminar, "Intermittent Communication Control in Mobile Robot Networks", University of Michigan, Ann Arbor, MI, Jan. 2017.
- 19. Workshop on Taxonomies of Interconnected Systems: Large-Scale Networks, "Distributed Optimization Algorithms for Networked Systems", IEEE Conference on Decision and Control, Las Vegas, NV, Dec. 2016.
- Workshop on Communication-Aware Control and Robotics, "Intermittent Communication Control in Mobile Robot Networks", IEEE Conference on Decision and Control, Las Vegas, NV, Dec. 2016.
- 21. CISE Seminar, "Intermittent Communication Control in Mobile Robot Networks", Boston University, Boston, MA, Oct. 2016.
- 22. CS Colloquia, "Distributed Estimation and Control in Mobile Robot Networks", Duke University, Durham, NC, Oct. 2016.
- 23. *DRIV Seminar*, "Distributed Communication-Aware Mobile Robot Networks", Duke University, Durham, NC, Feb. 2013.
- 24. DCSB Seminar, "Analysis and Reconstruction of Biomolecular Networks", Duke University, Durham, NC, Oct. 2013.
- 25. New Faculty Lecture Series, "Networked Robot Systems: Integrating Communication, Sensing, and Control", Duke University, Durham, NC, Mar. 2013.
- 26. WISeNet Seminar, "Controlling Mobility and Communications in Networks of Mobile Robots", Duke University, Durham, NC, Mar. 2013.
- 27. MEMS Seminar, "Distributed Control of Networked Robots and Systems", Duke University, Durham, NC, Mar. 2012.
- 28. *ME Seminar*, "Distributed Control of Networked Robots and Systems", Worcester Polytechnic Institute, Worcester, MA, Feb. 2012.
- 29. SOE Controls and Robotics Seminar, "Distributed Control of Networked Robots and Systems", Rutgers University, Piscataway, NJ, Oct. 2011.
- 30. ME Seminar, "Distributed Control of Networked Robots and Systems", City College of New York, New York, NY, Oct. 2010.
- 31. *ME Seminar*, "Distributed Control of Networked Robots and Systems", University of Delaware, Newark, DE, Oct. 2010.
- 32. *ISIS Seminar*, "Distributed Control of Networked Robots and Systems", Vanderbilt University, Nashville, TN, Feb. 2010.
- CS Seminar, "Distributed Control of Networked Robots and Systems", Stevens Institute of Technology, Hoboken, NJ, Apr. 2009.
- 34. ECEE Seminar, "Distributed Control of Networked Robots and Systems", University of Colorado at Boulder, Boulder, CO, Mar. 2009.

- 35. MAE Seminar, "Distributed Control of Networked Robots and Systems", Polytechnic Institute of New York University, Brooklyn, NY, Feb. 2009.
- 36. *EE Seminar*, "Distributed Control of Networked Robots and Systems", University of Texas at Dallas, Richardson, TX, Feb. 2009.
- 37. MAE Seminar, "Distributed Control of Networked Robots and Systems", Cornell University, Ithaca, NY, Mar. 2008.

UNIVERSITY SERVICE

Departmental and University Committees

- Search Committee Chair, Autonomy & Robotics Faculty Search (Sep. 2024 present)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- EROC (Executive Research Oversight Committee) Faculty Subcommittee Member (Sep. 2024
 present)
 Duke University, Durham, NC.
- 3. Search Committee Chair, Autonomy & Robotics Faculty Search (Sep. 2023 May 2024) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 4. MEMS Strategic Visioning Committee Member (Sep. 2022 present)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 5. Search Committee Member, Robotics Faculty Search (Sep. 2021 May 2022)

 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 6. Search Committee Chair, Autonomy & Aerospace Faculty Search (Dec. 2020 May 2021) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 7. Associate Director of Graduate Studies (Jul. 2020 Jun. 2021)

 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 8. Engineering Faculty Council (EFC) Member (Sep. 2019 Jun. 2021) Pratt School of Engineering, Duke University, Durham, NC.
- 9. MEMS Executive Committee Member (Sep. 2019 present)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 10. MEMS Awards Committee Member (Sep. 2019 May 2021)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 11. Steering Committee Member, Pratt 2039: Envisioning Our Future (Jan. 2020 Dec. 2020) Pratt School of Engineering, Duke University, Durham, NC.
- 12. Search Committee Member, Director of Diversity, Equity & Inclusion (Sep. 2019 Dec. 2020) Pratt School of Engineering, Duke University, Durham, NC.
- 13. Steering Committee Member, Robotics Masters Program (Sep. 2019 Apr. 2020) Pratt School of Engineering, Duke University, Durham, NC.
- Space Committee Member (Sep. 2015 Sep. 2019)
 Pratt School of Engineering, Duke University, Durham, NC.
- 15. Search Committee Member, Controls Faculty Search (Sep. 2015 Jun. 2016)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 16. Graduate Committee Member (Sep. 2012 Aug. 2015)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 17. Departmental Seminar Committee Member (Sep. 2012 Aug. 2015)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 18. Search Committee Member, Materials Faculty Search (Sep. 2014 Jun. 2015)
 Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.

- 19. Search Committee Member, Robotics Faculty Search (Sep. 2013 Jun. 2014) Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC.
- 20. Faculty Professional Development & Mentoring Response Team (Sep. 2012 Aug. 2013) Pratt School of Engineering, Duke University, Durham, NC.
- Undergraduate Committee Member (Jan. 2012 Aug. 2012)
 Dept. of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ.
- 22. Graduate Committee Member (Sep. 2010 Aug. 2012)

 Dept. of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ.

Instruction

- 1. Undergraduate
 - ME 344/ECE 382 Control Systems (Spring 2014 2021)
 Duke University, Durham, NC
 - ME 483 Control Systems (Fall 2010, 2011) Stevens Institute of Technology, Hoboken, NJ

2. Graduate

- ME 627/CEE 627 Linear Systems Theory (Fall 2012 2016, 2018 2020, 2024)
 Duke University, Durham, NC
- ME 555 Nonlinear Optimization (Spring 2016) Duke University, Durham, NC
- ME 621 Modern Control Engineering (Spring 2010 2012) Stevens Institute of Technology, Hoboken, NJ
- ME 654 Advanced Robotics (Spring 2011) (Taught jointly with David Cappelleri) Stevens Institute of Technology, Hoboken, NJ
- MEAM 620 Robotics (Spring 2009)
 (Taught jointly with Maxim Likhachev, Vinutha Kallem, and Nathan Michael)
 University of Pennsylvania, Philadelphia, PA

Doctoral Thesis Committees

- Zhishuai Liu (in progress). Dept. of Biostatistics & Bioinformatics, Duke University, Durham, NC. Thesis: "Distributionally Robust Offline Off-Dynamics Reinforcement Learning," Advisor: Prof. Pan Xu.
- 2. Amy Strong (in progress). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Safety and Stability of Model-Free, Data-Driven Control via Dissipativity and Invariant Sets," Advisor: Prof. Leila Bridgeman.
- 3. Ethan LoCicero (Apr. 2024). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Robust, Distributed, and Optimal Control via Dissipativity-Augmentation," Advisor: Prof. Leila Bridgeman.
- 4. Ying Chen (Mar. 2024). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Resource-efficient and Context-aware Edge Computing-supported Extended Reality Systems," Advisor: Prof. Maria Gorlatova.
- 5. Qitong Gao (Mar. 2024). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Learning for Control and Decision Making toward Medical Autonomy," Advisor: Prof. Miroslav Pajic.

- Alper Kamil Bozkurt (Jan. 2024). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Toward Assured Autonomy with Model-Free Reinforcement Learning," Advisor: Prof. Miroslav Pajic.
- Guangshen Ma (Nov. 2023). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "3D Tissue Modeling: Laser-based Multi-modal Surface Reconstruction, Crater Shape Prediction and Pathological Mapping in Robotic Surgery," Advisor: Prof. Patrick Codd.
- 8. Richard Hall (Aug. 2023). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Feasibility and Stability Results for Systems with Externally Triggered Switching," Advisor: Prof. Leila Bridgeman.
- 9. Boyang Zhang (Jul. 2023). Dept. of Civil & Environmental Engineering, Duke University, Durham, NC. Thesis: "Control Through Constraint," Advisor: Prof. Henri Gavin.
- 10. Luca Di Muro (Jul. 2023). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Innovations in Decompression Sickness Prediction and Adaptive Ascent Algorithms," Advisor: Prof. Laurens Howle.
- 11. Mark Nemecek (Jul. 2023). Dept. of Computer Science, Duke University, Durham, NC. Thesis: "Transfer Learning in Value-based Methods with Successor Features," Advisor: Prof. Ron Parr.
- 12. Amir Khazraei (Mar. 2023). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Vulnerability Analysis of Cyber-Physical Systems," Advisor: Prof. Miroslav Pajic.
- 13. Mark Chen (Jan. 2023). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Damage Detection and Sensor Placement Strategies for Structures Under Frequency-Domain Dynamics," Advisor: Prof. Wilkins Aquino.
- 14. Reza Lavaei (Nov. 2022). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Switched Controller Synthesis for Constrained Nonlinear Systems." Advisor: Prof. Leila Bridgeman.
- 15. Barrett Ames (Oct. 2022). Dept. of Computer Science, Duke University, Durham, NC. Thesis: "Towards Efficient and Robust Robot Planning." Advisor: Prof. George Konidaris.
- 16. Mahmoud Elfar (Jul. 2022). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Modeling and Design of Assured and Adaptive Cyber-Physical Systems." Advisor: Prof. Miroslav Pajic.
- 17. Zekun Cao (Mar. 2022). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Granulated Rest Frames as a Technique to Mitigate Visually-Induced Motion Sickness and its Application." Advisor: Prof. Regis Kopper.
- 18. Shihao Wang (Nov. 2019). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Optimization-Based Motion Planning for Humanoid Fall Recovery." Advisor: Prof. Kris Hauser.
- 19. Alexandros Nikou (Dec. 2019). School of Electrical Engineering & Computer Science, KTH Royal Institute of Technology, Stockholm, Sweden. Thesis: "Robust and Decentralized Control of Multi-agent Systems under High-level Tasks." Advisor: Prof. Dimos Dimarogonas. Role: Opponent.
- Vuk Lesi (Aug. 2019). Dept. of Electrical & Computer Engineering, Duke University, Durham,
 NC. Thesis: "Design of Secure and Safe Cyber-Physical Systems." Advisor: Prof. Miroslav Pajic.
- 21. Weston Ross (May 2019). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Adaptive Control of Volumetric Laser Photoablation Surgery." Advisor: Prof. Patrick Codd.

- 22. Victoria Nneji (Mar. 2019). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "A Workload Model for Designing & Staffing Future Transportation Network Operations." Advisor: Prof. Missy Cummings.
- 23. Xu Zhang (Dec. 2016). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Indirect Training Algorithms for Spiking Neural Networks based on Spiking Timing Dependent Plasticity and Their Applications." Advisor: Prof. Craig Henriquez.
- 24. Hongchuan Wei (Jun. 2016). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Sensor Network Planning for Multiple Targets Learning." Advisor: Prof. Silvia Ferrari.
- 25. Wenjie Lu (Nov. 2014). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Autonomous Sensor Path Planning and Control for Active Information Gathering." Advisor: Prof. Silvia Ferrari.
- 26. Miao Liu (May 2014). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Efficient Bayesian Nonparametric Methods for Model-Free Reinforcement Learning in Centralized and Decentralized Sequential Environments." Advisor: Prof. Lawrence Carin.
- 27. Yangbo Long (May 2014). Dept. of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ. Thesis: "Design, Modeling, and Control of an Overactuated Micro Aerial Vehicle." Advisor: Prof. David Cappelleri.
- 28. Wenlin Zhang (Dec. 2012). Dept. of Electrical & Computer Engineering, Stevens Institute of Technology, Hoboken, NJ. Thesis: "Consensus-Based Cooperative Control with Applications to Robotic and Communication Systems." Advisor: Prof. Yi Guo.
- 29. Mary Schurgot (Apr. 2012). Dept. of Electrical & Computer Engineering, Stevens Institute of Technology, Hoboken, NJ. Thesis: "Multi-Objective Performance Evaluation in Wireless Ad-Hoc Networks." Advisor: Prof. Cristina Comaniciu.
- 30. Gabriela Martinez (Apr. 2011). Dept. of Mathematics, Stevens Institute of Technology, Hoboken, NJ. Thesis: "Stochastic Optimization Problems with Constraints on Distribution Functions." Advisor: Prof. Darinka Dentcheva.
- 31. Hua Wang (Jul. 2010). Dept. of Electrical & Computer Engineering, Stevens Institute of Technology, Hoboken, NJ. Thesis: "Dynamic Networked Systems: Consensus, Cooperation, and Rigidity Control." Advisor: Prof. Yi Guo.

Masters Thesis Committees

- Harsh Bandhey (Nov. 2022). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Machine Learning for Ophthalmologic Predictions." Advisor: Prof. Miroslav Pajic.
- 2. Afsana Chowdhury (Nov. 2022). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Closed-loop deep brain stimulation in Parkinson?s Disease with distributed, proportional plus integral control." Advisor: Prof. Miroslav Pajic.
- 3. Zheng Gong (Mar. 2021). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Time-Delay Control using Conic Sectors." Advisor: Prof. Leila Bridgeman.
- 4. Cheng Gong (Mar. 2021). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Analysis of Spherical, Rolling Magnet Generator for Passive Energy Harvesting." Advisor: Prof. Brian Mann.
- 5. Liangting Wu (Mar. 2020). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "H2-Conic Controller Synthesis." Advisor: Prof. Leila Bridgeman.

- 6. Mark Nemecek (Mar. 2019). Dept. of Computer Science, Duke University, Durham, NC. Thesis: "Transition Space Distance Learning." Advisor: Prof. Ron Parr.
- Ilija Jovanov (June 2018). Dept. of Electrical & Computer Engineering, Duke University, Durham, NC. Thesis: "Secure Control of Cyber-Physical Systems with Intermittent Data Authentication." Advisor: Prof. Miroslav Pajic.
- 8. Yunhan Wang (Mar. 2018). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Evaluation of an Eye Tracking Selection Technique with Progressive Refinement." Advisor: Prof. Regis Kopper.
- 9. Yi Zheng (Mar. 2017). Dept. of Computer Science, Duke University, Durham, NC. Thesis: "Unified Landscape of Low Rank Nonconvex Problem." Advisor: Prof. Rong Ge.
- Weston Ross (Apr. 2016). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Investigating the Tradespace between Increased Automation and Optimal Manning on Aircraft Carrier Decks." Advisor: Prof. Missy Cummings.
- 11. Xu Zhang (Jun. 2015). Dept. of Mechanical Engineering & Materials Science, Duke University, Durham, NC. Thesis: "Indirect Training Algorithms for Spiking Neural Networks Controlled Virtual Insect Navigation." Advisor: Prof. Silvia Ferrari.

Capstone Senior Design Project Advising

- 1. Kristin Miller, Brian Dorsey, Sherry Zhang, Dylan Gleit, Andrew Burton (2016). Duke University, Durham, NC. Project: "Immersion Heater for Sous-Vide Style Cooking."
- 2. Keith Coffey, Hamza Mohamed, Steven Moss, Daniel Van Schaik (2011-2012). Stevens Institute of Technology, Hoboken, NJ. Project: "Assembly Line Product Elevator."
- 3. Abel Alvarez, Kyle Brisson, Eric Chirlin, Cassidy DeSchryver, Jeffrey Lichtenfeld (2010-2011). Stevens Institute of Technology, Hoboken, NJ. Project: "New Jersey Department of Transportation Pedestrian Safety."
- 4. Regina Pynn, Matthew Edwards, Tom Lakatos, Michael Dambakly (2010-2011). Stevens Institute of Technology, Hoboken, NJ. Project: "Remotely Pilotable Inspection Craft-Propulsion System."

Undergraduate Student Organization Advising

1. Duke University Robotics Club, Duke University, Durham, NC (Sep. 2012 - present)

PROFESSIONAL SERVICE

Journal Editorial Boards

1. Associate Editor (Networks in Systems and Control), Automatica (Aug. 2015 - Jul. 2021)

Conference Editorial Boards

- 1. Associate Editor, IEEE Control Systems Society (Jun. 2013 May 2018)
- 2. Associate Editor, American Control Conference (2014 2018)
- 3. Associate Editor, IEEE Conference on Decision and Control (2014 2017)
- 4. Associate Editor, IEEE International Conference on Robotics and Automation (2012, 2014, 2015)
- 5. Associate Editor, IEEE Mediterranean Conference on Control and Automation (2011 2013)

Technical Program Committees

- 1. ACM/IEEE International Conference on Cyber-Physical Systems (2016, 2017, 2019, 2020)
- 2. Robotics: Science and Systems (2011, 2012, 2014)

Workshop and Invited Session Organizer

- Co-organizer (with Guangyi Liu, Ufuk Topcu, and Nader Motee), Invited session on Autonomous Risk-Aware Perception, Planning, and Control, 2025 American Control Conference (ACC), Denver, CO, Jul. 2025.
- Co-organizer (with George J. Pappas), Workshop on Learning for Control, NSF CPS PI Meeting, Washington DC, Nov. 2019.
- Co-organizer (with Wilkins Aquino, Jianfeng Lu, and Drew Kouri), Workshop on Optimization under Uncertainty and Data-Driven Science and Engineering, Duke University, Durham, NC, Apr. 2017.
- Co-organizer (with Alejandro Ribeiro), Invited session on Communication Management in Robot Networks, 2011 Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2011.
- 5. Co-organizer (with A. Agung Julius), Invited session on *Modeling and Identification of Genetic Regulatory Networks*, 2008 American Control Conference, Seattle, WA, Jun. 2008.

Reviewer

- 1. Journals: IEEE Transactions on Automatic Control, IEEE Transactions on Robotics, International Journal of Robotics Research, SIAM Journal on Control and Optimization, Proceedings of the IEEE, Automatica, IEEE Transactions on Control of Network Systems, IEEE Control Systems Letters, Robotics and Autonomous Systems, IEEE Robotics and Automation Letters, IEEE Transactions on Sensor Networks, IEEE Transactions on Cybernetics, IEEE Transactions on Control Systems Technology, International Journal of Control.
- 2. Conferences: IEEE Conference on Decision and Control (CDC), IEEE International Conference on Robotics and Automation (ICRA), American Control Conference (ACC), European Control Conference (ECC), Mediterranean Conference on Control and Automation (MED), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE International Conference on Automation Science and Engineering (CASE), IEEE Multi-Conference on Systems and Control (MSC), IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS), Robotics: Science and Systems Conference (RSS), International Conference on Hybrid Systems: Computation and Control (HSCC), ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), IFAC World Congress.

Government Activities

- 1. Program Committee Member, NSF CPS PI Meeting, Washington DC, Nov. 2019
- NSF Proposal Panels: IIS Division (2013, 2014, 2018, 2020), CMMI Division (2013), CNS Division (2012, 2014, 2016, 2018)
- 3. NSERC Proposal Reviewer, 2020
- 4. European Research Council (ERC) Proposal Reviewer, 2022

Professional Memberships

1. Senior Member of IEEE, Eastern North Carolina Section (2019 - present) Control Systems Society, Robotics and Automation Society

- 2. Member of ASME, Eastern North Carolina Section (2012 present) Dynamic Systems and Control Division
- 3. Member of IEEE, Eastern North Carolina Section (2008 2019) Control Systems Society, Robotics and Automation Society
- 4. Student Member of IEEE, Philadelphia Chapter (2005 2008) Control Systems Society, Robotics and Automation Society
- 5. Member of the Technical Chamber of Greece (2003 present) Mechanical Engineering

RESEARCH FUNDING

1. Supplement to Center of Excellence: Assured Autonomy in Contested Environments

Air Force Research Labs

Institutions: Duke University

PI: Michael M. Zavlanos

Total Award: \$355,956, 09/01/2020 - 03/31/2026.

2. Distributed Learning for Control of Cyber-Physical Systems

National Science Foundation, Cyber-Physical Systems (CPS) Program

Institutions: Duke University PI: Michael M. Zavlanos

Total Award: \$407,522, 10/01/2019 - 09/30/2023.

3. GuArDIAN: General Active Sensing for conDition AssessmeNt

Department of Energy, Nuclear Energy University Program

Institutions: Duke University (Lead), Sandia National Laboratories, Westinghouse Electric Company LLC

PI: Wilkins Aquino (Duke), co-PI(s): Michael M. Zavlanos (Duke), Timothy Walsh (Sandia), Gregory Banyay (Westinghouse)

Total Award: \$793,721 (Duke Award: \$633,721), 10/01/2019 - 09/30/2023.

4. Center of Excellence: Assured Autonomy in Contested Environments

Air Force Office of Scientific Research

Institutions: University of Florida (Lead), Duke University, University of Texas Austin, University of California Santa Cruz

PI: Warren Dixon (UF), co-PI(s): Riccardo Bevilacqua (UF), Kevin Butler (UF), Norman Fitz-Coy (UF), Matthew Hale (UF), John Shea (UF), Michael M. Zavlanos (Duke), Miroslav Pajic (Duke), Ufuk Topcu (UT), Ricardo Sanfelice (UCSC)

Total Award: \$6,000,000 (Duke Award: \$1,140,000), 04/01/2019 - 03/31/2026.

5. Controlling Intermittently Connected Autonomous Robot Teams in Underwater Environments
Office of Naval Research, Science of Autonomy Program

Institutions: Duke University

PI: Michael M. Zavlanos

Total Award: \$506,363, 04/15/2018 - 07/14/2023.

6. Human-on-the-Loop Control for Smart Ultrasound Imaging

National Science Foundation, Cyber-Physical Systems (CPS) Program

Institutions: Duke University (Lead), Mayo Clinic

PI: Michael M. Zavlanos (Duke), co-PI(s): Miroslav Pajic (Duke), Wilkins Aquino (Duke), Mostafa Fatemi (Mayo), Azra Alizad (Mayo)

Total Award: \$999,995 (Duke Award: \$599,995), 10/01/2018 - 09/30/2022.

7. Design of an Agile and Smart Manufacturing Exchange: Enabling Small Businesses through Standardized Protocols and Distributed Optimization

National Science Foundation, Early-Concept Grants for Exploratory Research (EAGER) in Cybermanufacturing Systems

Institutions: Duke University

PI: Krishnendu Chakrabarty, co-PI(s): Michael M. Zavlanos, Bruce Maggs

Total Award: \$279,416, 09/01/2015 - 08/31/2018.

8. Control of Mobile Robot Networks: Integrating the Communication and Physical Domains National Science Foundation, Research Experiences for Undergraduates (REU) Program Institutions: Duke University

PI: Michael M. Zavlanos

Total Award: \$10,420, 09/01/2014 - 05/31/2017.

9. Distributed Real-Time Optimization of Mobile Wireless Networks

Office of Naval Research, Young Investigator Program (YIP)

Institutions: Duke University PI: Michael M. Zavlanos

Total Award: \$502,494, 07/01/2014 - 09/30/2017.

10. Optimal Communication for Fast Sensor Network Coordination

National Science Foundation, Networking Technology and Systems (NeTS) Program

Institutions: Duke University (Lead), University of Pennsylvania

PI: Michael M. Zavlanos (Duke), co-PI(s): Alejandro Ribeiro (UPenn), Victor Preciado (UPenn)

Total Award: \$774,990 (Duke Award: \$259,990), 10/01/2013 - 09/30/2017.

11. Mobile Microrobot Platform for Advanced Manufacturing Applications

National Science Foundation, Robust Intelligence (RI) Program

Institutions: Purdue University (Lead), Duke University

PI: David Cappelleri (Purdue), co-PI(s): Michael M. Zavlanos (Duke)

Total Award: \$599,861 (Duke Award: \$184,482), 07/01/2013 - 06/30/2017.

12. Controlling Teams of Autonomous Mobile Beamformers

National Science Foundation, Networking Technology and Systems (NeTS) Program

Institutions: Duke University (Lead), Rutgers University

Subcontracts: Purdue University

PI: Michael M. Zavlanos (Duke), co-PI(s): Athina Petropulu (Rutgers), David Cappelleri

(Purdue)

Total Award: \$550,000 (Duke Award: \$294,000), 03/01/2013 - 02/28/2017.

13. Acquisition of a Large Volume, High Resolution Motion Capture System for an Interdisciplinary Research Facility

National Science Foundation, CNS-MRI Program

Institutions: Purdue University (Lead), Duke University, Stevens Institute of Technology

PI: David Cappelleri (Purdue), co-PI(s): Michael M. Zavlanos (Duke), Philippos Mordohai (Stevens), Mark Blackburn (Stevens), Antonio Valdevit (Stevens)

Total Award: \$203,988, 09/01/2012 - 08/31/2015.

14. Control of Mobile Robot Networks: Integrating the Communication and Physical Domains National Science Foundation, Faculty Early Career Development (CAREER) Program

Institutions: Duke University

PI: Michael M. Zavlanos

Total Award: \$449,569, 02/01/2011 - 05/31/2017.