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EDUCATION

November 2002	Ph.D., Mechanical and Aerospace Engineering, Princeton University
November 1999	M.A., Mechanical and Aerospace Engineering, Princeton University
May 1997	B.S., Aerospace Engineering, Embry-Riddle Aeronautical University *Summa cum laude*

PROFESSIONAL EXPERIENCE AND AFFILIATIONS

2015 – present	Professor, Sibley School of Mechanical and Aerospace Engineering, Cornell University
2013 – 2015	Professor, Department of Mechanical Engineering and Materials Science, Duke University
2013 – 2015	Professor (Secondary Appointment), Department of Electrical and Computer Engineering, Duke University
2013 – 2015	Professor (Secondary Appointment), Department of Computer Science, Duke University
2011 – 2015	Director, Graduate Training Program in Wireless Intelligent Sensor Networks (WISeNet), Duke University
2008 – 2015	Faculty, Duke Institute of Brain Sciences (DIBS), Duke University
2010 – 2013	Paul Ruffin Scarborough Associate Professor of Engineering, Duke University
2010 – 2013	Associate Professor (Secondary Appointment), Department of Electrical and Computer Engineering, Duke University
2010 – 2013	Associate Professor (Secondary Appointment), Department of Computer Science Duke University
2002 – 2009	Assistant Professor, Department of Mechanical Engineering and Materials Science, Duke University
2005 – 2009	Assistant Professor (Secondary Appointment), Department of Electrical and Computer Engineering, Duke University

HONORS, AWARDS & EDITORSHIPS

- Editor, "Defense, Military, and Surveillance Robotics Section", *Springer Current Robotics Reports*, 2020 – present.
- Guest Editor and Organizer, "Special issue on the Control of Very-large Scale Robotic (VLSR) Networks," *IEEE Transactions on Control of Network Systems*, 2019 – 2020.
- Invited Participant, *Special Panel for Distinguished Former NSF-ECS CAREER award winners*, International Joint Conference on Neural Networks, Budapest, Hungary, 2019.
- Invited Panelist, Air Force S&T 2030 Expert Panel: Robotics and Autonomous Systems, Arlington (VA), 2018.
- Advisory Board Member and Partner, *mAIRsure*, 2016 – present
- Robohub "25 Women in Robotics You Need to Know About", 2014
- Associate Editor, *AIAA Journal of Aerospace Information Systems*, 2013 – present
- Associate Editor, *IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics*, 2009 – 2016
- Associate Editor, *IEEE Control Systems Magazine*, 2008 – 2016
- Advisory Board Member, *SHERPA European Union (EU) Project*, 2012 – 2016
- Advisory Board Member, *Duke immersive Virtual Environment (DiVE)*, Duke University, NC, 2012 – 2016
- Advisory Board Member, *Introspective Systems LLC.*, Peaks Island, ME, 2010 – 2016
- Invited Member, *Duke Institute for Brain Sciences (DIBS)*, Duke University, 2009 – 2016
- Associate Editor, *IEEE Transactions on Neural Networks*, 2013 – 2015
- Advisory Board Member, *Intelligent Systems Research Center (ISRC)*, University of Ulster, UK, 2008 – 2015
- Editorial Board Member, *Smart Structures and Systems*, 2005 – 2014
- Presidential Early Career Award for Scientists and Engineers (PECASE), 2006
- International Crime Analysis Association Research Award, 2005
- National Science Foundation CAREER Award, 2005
- Office of Naval Research Young Investigator Award, 2004
- NC Space Grant Consortium Research Seed Award, 2003
- Princeton University Wallace Memorial Honorific Fellowship in Engineering, 2001 – 02
- American Society of Mechanical Engineers (ASME) Graduate Teaching Fellowship, 2001 – 02
- American Control Conference Student Best Paper Award Finalist, 2001
- American Astronautical Society Donald K. "Deke" Slayton Memorial Fellowship, 2001
- Zonta International Amelia Earhart Fellowship Award, 2000-01 and 2001 – 02
- American Institute of Aeronautics and Astronautics (AIAA) Guidance, Navigation, and Control Graduate Award, 1999
- Princeton University Luigi Crocco Award for Assistance-in-Instruction, 1999
- Embry-Riddle University Academic Achievement in Aerospace Engineering Award, 1997

- United States Achievement Academy Scholarship, 1995 – 96
- Embry-Riddle University Outstanding Achievement in Mathematics as a Junior Award, 1995
- National Collegiate Mathematics Award, 1994
- All American Scholar, 1994

PROFESSIONAL AND HONOR SOCIETY MEMBERSHIPS

- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
- Chair, IEEE Technical Committee on Adaptive Dynamic Programming and Reinforcement Learning
- Member, IEEE Committees and Societies:
  - Technical Committee on Intelligent Control (TCIC)
  - Technical Committee on Games
  - Computational Intelligence Society
  - Computers Society
  - Control Systems Society
  - Women in Control Society
- Member, Society for Industrial and Applied Mathematics (SIAM)
- Member, International Society for Optical Engineering (SPIE)
- Member, American Institute of Aeronautics and Astronautics (AIAA)
- Member, American Society of Mechanical Engineers (ASME)
- Member, International Crime Analysis Association member

PUBLICATIONS

Refereed Journal Articles

1. P. Zhu, C. Liu, Member, and S. Ferrari "Adaptive Online Distributed Optimal Control of Very-Large-Scale Robotic Systems," *IEEE Transactions on Control of Network System*, in review.

2. B. Doerr, R. Linares, P. Zhu, and S. Ferrari, "Random Finite Set Theory and Optimal Control for Large Spacecraft Swarms," *AIAA Journal of Guidance, Control, and Dynamics*, in review.

3. T. S. Clawson, S. Ferrari, E. Helbling, R. J. Wood, B. Fu, A. Ruina, and Z. Jane Wang, "Modeling and Analysis of Minimally Actuated Full-envelope Flapping-wing Flight Dynamics," *AIAA Journal of Guidance, Control, and Dynamics*, in press.

4. J. Gemerek, S. Ferrari, B. H. Wang, and M. E. Campbell, "Video-guided Camera Control for Target Tracking and Following," *Elsevier IFAC – PapersOnLine*, Vol. 51, No. 34, pp. 176-183, 2019 (https://doi.org/10.1016/j.ifacol.2019.01.062).

5. H. Oh-Descher, T. Hitomi, Kevin S. LaBar, S. Ferrari, M. A. Sommer, and T. Egner, "Anticipatory anxiety promotes satisficing during multi-cue probabilistic decision making," psyarxiv.com, 2019.

6. J. Morelli, P. Zhu, B. Doerr, R. Linares, S. Ferrari, "Integrated Gas Distribution Mapping and Path Planning for Very Large-Scale Robotic (VLSR) Systems," *Sensors*, Vol. 19, No. 7, 2019.

7. A. Toader, H. M. Rao, M. Ryoo, M. O. Bohlen, J. S. Cruger, H. Oh-Descher, S. Ferrari, T. Egner, J. Beck, M. A. Sommer, "Probabilistic Inferential Decision-Making Under Time Pressure in Macaques," *Journal of Comparative Psychology*, Vol. 133, No. 3, pp. 380-396, 2019.

8. H. Wei, W. Lu, P. Zhu, M. Liu, J. P. How, S. Ferrari, "Automatic Pan-tilt Camera Control for Learning Dirichlet Process Gaussian Process (DPGP) Mixture Models of Multiple Moving Targets," *IEEE Transactions on Automatic Control*, Vol. 64, No. 1, pp. 159 173, January 2019.

9. X. Zhang, Z. Xu, G. Foderaro, C. Henriquez, and S. Ferrari, "Spike-induced Learning for Locomotory Control," *International Journal of Neural Systems*, Vol. 28, No. 02, March 2018.

10. G. Foderaro, S. Ferrari, T. A. Wettergren, "Distributed Optimal Control of Sensor Networks for Dynamic Track Coverage," *IEEE Transactions on Control of Network Systems*, Vol. 5, No. 1, March 2018.

11. H. Oh-Descher, J. M. Beck, S. Ferrari, M. A. Sommer, T. Egner, "Probabilistic Inference Under Time Pressure Leads to a Cortical-to-subcortical Shift in Decision Evidence Integration," *NeuroImage*, Vol. 162, pp. 138-150, 2017.

12. K. Rudd, G. Foderaro, and S. Ferrari, "A Generalized Reduced Gradient Method for the Optimal Control of Very Large Scale Robotic (VLSR) Systems," *IEEE Transactions on Robotics*, Vol. 33, No. 5, 2017.

13. A. Swingler, G. Foderaro, and S. Ferrari, "A Model-based Approach to Optimizing Decision Strategies in the Video Game Ms. Pac-Man," *IEEE Transactions on Computational Intelligence and AI in Games*, Vol. 9, No. 2, 2017 .

14. H. Wei, W. Lu, P. Zhu, S. Ferrari, M. Liu, R. Klein, S. Omidshafiei, J. P. How, "Information Value in Nonparametric Dirichlet Process Gaussian Process (DPGP) Mixture Models of Target Kinematics," *Automatica*, Vol. 74, pp. 360-268, 2016.

15. D. Hu, X. Zhang, Z. Xu, S. Ferrari, and P. Mazumder, "Digital Chip Design and Implementation for a Spiking Neural Network with Indirect Training," *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol. 54, pp. 109-117, 2016.

16. H. Oh, J. Beck, P. Zhu, M. A. Sommer, S. Ferrari, and T. Egner, "Satisficing in split-second decision making is characterized by strategic discounting of least valuable cues," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol. 42, No. 12, pp. 1937-1956, 2016.

17. J. Albertson, T. Harvey, G. Foderaro, P. Zhu, X. Zhou, S. Ferrari, S. M. Amin, M. Modrak, H. Brantley, E. Thoma, "A Mobile Sensing Approach for Regional Surveillance of Fugitive Methane Emissions in Oil and Gas Production," *Environmental Science and Technology*, Vol. 50, No. 5, pp. 2487-2497, 2016.

18. S. Ferrari, G. Foderaro, P. Zhu, and T. Wettergren "Distributed Optimal Control of Multiscale Dynamical Systems: A Tutorial", *Control Systems Magazine*, Vol. 36, No. 2, pp. 102-116 2016.

19. W. Lu and S. Ferrari, "A Hybrid Adaptive Dynamic Programming Approach for the Control of Nonlinear Switched Systems with Fixed End Time," *IEEE Transactions on Automatic Control*, Vol. 61, No. 10, pp. 3203-3208, 2016.

20. H. Wei and S. Ferrari, "A Geometric Transversals Approach to Sensor Motion Planning for Tracking Maneuvering Targets," *IEEE Transactions on Automatic Control*, Vol. 60, No. 10, pp. 2773-2778, 2015.

21. K. Rudd, G. Di Muro, and S. Ferrari, "A Constrained Integration (CINT) Approach to Solving Partial Differential Equations using Artificial Neural Networks," *Neurocomputing*, Vol. 155, pp. 277-285, 2015.

22. K. Rudd, J. A. Albertson, and S. Ferrari, "Optimal Root Profiles in Water-Limited Ecosystems," *Advances in Water Resources*, Vol. 71, pp. 16-22, 2014.

23. G. Zhang, W. Lu, and S. Ferrari, "An Information Potential Approach to Integrated Sensor Path Planning and Control," *IEEE Transactions on Robotics*, Vol. 30, No. 4, pp. 919-934, 2014.

24. G. Foderaro, S. Ferrari, T. A. Wettergren, "Distributed Optimal Control for Multi-agent Trajectory Optimization," *Automatica*, Vol. 50, No. 1, pp. 149-154, 2014.

25. K. Rudd, G. Di Muro, and S. Ferrari, "A Constrained Backpropagation Approach for the Adaptive Solution of Partial Differential Equations," *IEEE Transactions on Neural Networks and Learning Systems*, Vol. 25, No. 3, 2014.

26. H. Wei and S. Ferrari, "A Geometric Transversals Approach to Analyzing the Probability of Track Detection for Maneuvering Targets," *IEEE Transactions on Computers*, Vol. 63, No. 11, pp. 2633-2646, 2014.

27. X. Zhang, G. Foderaro, C. Henriquez, A. M. J. VanDongen, S. Ferrari, "A Radial Basis Function Spike Model for Indirect Learning via Integrate-and-Fire Sampling and Reconstruction Techniques," *Advances in Artificial Neural Systems*, Volume 2012, Article ID 713581, 2012 (doi: 10.1155/2012/713581).

28. N. Maheswaranathan, S. Ferrari, A. M. J. VanDongen and C. Henriquez, "Emergent bursting and synchrony in computer simulations of neuronal cultures," *Frontiers in Computational Neuroscience*, Vol. 6, No. 15, April 3, 2012 (doi: 10.3389/fncom.2012.00015).

29. W. Lu, G. Zhang, S. Ferrari, M. Anderson, and R. Fierro, "An Information Potential Approach for Tracking and Surveilling Multiple Moving Targets using Mobile Sensor Agents, " *Journal of Defense Modeling and Simulation*, June 1, 2012 (doi: 10.1177/1548512912445406).

30. S. Ferrari, G. Zhang, and C. Cai, "A Comparison of Information Functions and Search Strategies for Sensor Planning," *IEEE Transactions on Systems, Man, and Cybernetics - Part B*, Vol. 42, No. 1, 2012.

31. N. Bezzo, R. Fierro, A. Swingler, and S. Ferrari, "Mobile Router Networks: A Disjunctive Programming Approach," *International Journal of Robotics and Automation*, Vol. 26, No. 1, pp. 13-25, 2011.

32. G. Foderaro, V. Raju, and S. Ferrari, "A Model-based Approximate λ-Policy Iteration Approach to Online Evasive Path Planning and the Video Game Ms. Pac-Man," *Journal of Control Theory and Applications*, Vol. 9, No. 3, pp. 391-399, 2011.

33. S. Ferrari and G. Daugherty, "A Q-learning Approach to Automated Unmanned Air Vehicle Demining," *The Journal of Defense Modeling and Simulation*, Vol. 9, pp. 83-92, 2011.

34. S. Ferrari, G. Zhang, and T. Wettergren, "Probabilistic Track Coverage in Cooperative Sensor Networks," *IEEE Transactions on Systems, Man, and Cybernetics - Part B*, Vol. 40, No. 6, 2010.

35. K. C. Baumgartner, S. Ferrari, and A. Rao, "Optimal Control of a Mobile Sensor Network for Cooperative Target Detection," *IEEE Journal of Oceanic Engineering*, Vol. 34, No. 4, 2009.

36. K. C. Baumgartner, S. Ferrari, and T. Wettergren, "Robust Deployment of Ocean Sensor Networks," *IEEE Sensors Journal*, Vol. 9, No. 9, pp. 1029-1048, 2009.

37. G. Zhang, S. Ferrari, and M. Qian, "Information Roadmap Method for Robotic Sensor Path Planning," *Journal of Intelligent and Robotic Systems*, Vol. 56, pp. 69-98, 2009.

38. S. Ferrari, R. Fierro, B. Perteet, C. Cai, and K. C. Baumgartner, "A Geometric Optimization Approach to Detecting and Intercepting Dynamic Targets Using a Mobile Sensor Network," *SIAM Journal on Control and Optimization*, Vol. 48, No. 1, pp. 292-320, 2009.

39. C. Cai and S. Ferrari, "Information-Driven Sensor Path Planning by Approximate Cell Decomposition," *IEEE Transactions on Systems, Man, and Cybernetics - Part B*, Vol. 39, No. 3, pp. 672-689, 2009.

40. S. Ferrari and C. Cai, "Information-Driven Search Strategies in the Board Game of CLUE," *IEEE Transactions on Systems, Man, and Cybernetics - Part B*, Vol. 39, No. 3, pp. 607-625, 2009.

41. S. Ferrari, "Multi-Objective Algebraic Synthesis of Neural Control Systems by Implicit Model Following," *IEEE Transactions on Neural Networks*, Vol. 20, No. 3, pp. 406-419, 2009.

42. S. Ferrari, J. E. Steck, and R. Chandramohan, "Adaptive Feedback Control by Constrained Approximate Dynamic Programming," *IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics*, Vol. 38, No. 4, pp. 982-987, 2008.

43. K. C. Baumgartner and S. Ferrari, "A Geometric Approach to Analyzing Track Coverage in Sensor Networks", *IEEE Transactions on Computer*, Vol. 57, No. 8, pp. 1113-1128, 2008.

44. K. C. Baumgartner, S. Ferrari, and G. Palermo, "Constructing Bayesian Networks for Criminal Profiling from Limited Data," *Knowledge-Based Systems*, Vol. 21, No. 7, pp. 563-572, 2008.

45. S. Ferrari, K. C. Baumgartner, G. Palermo, R. Bruzzone, and M. Strano, "Network Models of Criminal Behavior: Comparing Bayesian and Neural Networks for Decision Support in Criminal Investigations" *IEEE Control Systems Magazine*, Vol. 28, No. 4, pp. 65-77, 2008.

46. S. Ferrari and M. Jensenius, "A Constrained Optimization Approach to Preserving Prior Knowledge During Incremental Training," *IEEE Transactions on Neural Networks*, Vol. 19, No. 6, pp. 996-1009, 2008.

47. S. Ferrari and A. Vaghi, "Demining Sensor Modeling and Feature-level Fusion by Bayesian Networks," *IEEE Sensors Journal*, Vol. 6, No. 2, pp. 471-483, April 2006.

48. S. Ferrari and R. F. Stengel, "Smooth Function Approximation by Neural Networks," *IEEE Transactions on Neural Networks*, Vol. 16, No.1, pp. 24-38, 2005.

49. S. Ferrari and R. F. Stengel, "On-line Adaptive Critic Flight Control," *Journal of Guidance, Control, and Dynamics*, Vol. 27, No. 5, pp. 777-786, 2004.

50. S. Ferrari and R. F. Stengel, "Classical/Neural Synthesis of Nonlinear Control Systems," *Journal of Guidance, Control, and Dynamics*, Vol. 25, No. 3, pp. 442-448, 2002.

Books and Book Chapters

1. S. Ferrari and T. A. Wettergren, *Information-driven Planning and Control*, MIT Press, to appear, 2020.

2. S. Ferrari, K. Rudd, and G. Di Muro (2012), "A Constrained Backpropagation (CPROP) Approach to Function Approximation and Approximate Dynamic Programming," *Reinforcement Learning and Approximate Dynamic Programming for Feedback Control*, Eds. Frank Lewis and Derong Liu, August 2012.

3. S. Ferrari and R. F. Stengel (2004), "Model-based Adaptive Critic Designs," *Learning and Approximate Dynamic Programming*, J. Si, A. Barto, W. Powell, Eds., John Wiley and Sons

4. Y. Crispin and S. Ferrari (1995), "Adaptive Control of Chaos Induced Capsizing of a Ship," in *Intelligent Engineering Systems through Artificial Neural Networks*, Vol. 5, Fuzzy Logic and Evolutionary Progr., C.H. Dagli et. al, Eols, ASME Press, NY.

Peer-Reviewed Conference Papers

1. S. J. Koppal, B. Tilmon, J. Eakta, and S. Ferrari, "FoveaCam: A MEMS Mirror-Enabled Foveating Camera," *Proc. of the IEEE International Conference on Computational Photography (ICCP)*, accepted, 2020.

2. J. Dong, P. Zhu, and S. Ferrari, "Oriented Interaction Inference for Autonomous Pedestrian Trajectory Prediction and Tracking," *Proc. of the American Control Conference (ACC)*, accepted, 2020.

3. Z. Stojanovski, P. Zhu, K. LeGrand, and S. Ferrari, "Distributed Pursuit-Evasion Games for Mobile Monitoring and Surveillance," *The Nineteenth Yale Workshop on Adaptive and Learning Systems*, Center for Systems Science, Yale University, New Heaven, CT, 2019.

4. C. Liu, Y. Chen, J. Gemerek, H. Yang, and S. Ferrari, "Learning Recursive Bayesian Nonparametric Modeling of Moving Targets via Mobile Decentralized Sensors," *Proc. of the International Conference on Robotics and Automation (ICRA)*, pp. 8034-8040, 2019.

5. J. Morelli, P. Zhu, B. Doerr, R. Linares, and S. Ferrari, "Integrated Mapping and Path Planning for Very Large-Scale Robotic (VLSR) Systems," *Proc. of the International Conference on Robotics and Automation (ICRA)*, pp. 3356-3362, 2019.

6. C. Liu and S. Ferrari, "Vision-guided Planning and Control for Autonomous Taxiing via Convolutional Neural Networks," *Proc. of the AIAA Science and Technology Forum and Exposition*, Intelligent Systems Invited Session, p. 928, 2019 (https://doi.org/10.2514/6.2019-0928).

7. J. Gemerek, S. Ferrari, B. Wang, and M. Campbell "Video-guided Camera Control and Target Tracking using Dense Optical Flow," *Proc. of the IFAC Conference on Cyber-Physical and Human Systems (CPHS)*, December 2018.

8. B. Fu, P. Zhu, J. Isaacs, and S. Ferrari "A Deep Learning Approach to Modeling Expected Entropy Reduction in Imaging Sonar," *Proc. of the SIAM Conference on Imaging Science*, Symposium on "Applications of Imaging Modalities beyond the Visible Spectrum," June 2018.

9. S. Chang, J. Isaacs, B. Fu, J. Shin, P. Zhu, and S. Ferrari, "Confidence Level Estimation in Multi-target Classification Problems," *Proc. of SPIE Defense and Security Symposium*, April 2018.

10. B. Fu and S. Ferrari, "Robust Flight Control via Minimum H∞ Entropy Principle," *Proc. of the AIAA Guidance, Navigation, and Control (GNC) Conference*, January 2018

11. P. Zhu, J. Isaacs, B. Fu, and S. Ferrari, "Deep Learning Feature Extraction for Target Recognition and Classification in Underwater Sonar Images," *Proc. of the IEEE Conference on Decision and Control (CDC)*, December 2017.

12. T. Clawson, T. C. Stewart, C. Eliasmith, and S. Ferrari, "An Adaptive Spiking Neural Controller for Flapping Insect-scale Robots," *Proc. of the IEEE Symposium Series on Computational Intelligence (SSCI)*, November 2017.

13. J. Gemerek, J. Albertson, and S. Ferrari, "Fugitive Gas Emission Rate Estimation Using Multiple Heterogeneous Mobile Sensors," *ISOCS/IEEE International Symposium on Olfaction and Electronic Nose (ISOEN)*, doi: 10.1109/ISOEN.2017.7968897, July 2017.

14. T. S. Clawson, S. B. Fuller, R. J. Wood, S. Ferrari, "A Blade Element Approach to Modeling Aerodynamic Flight of an Insect-scale Robot," *Proc. of the American Control Conference (ACC)*, doi: 10.23919/ACC.2017.7963382, May 2017.

15. P. Zhu, J. Morelli, S. Ferrari, "Value Function Approximation for the Control of Multiscale Dynamical Systems," *Proc. of the IEEE Conference on Decision and Control (CDC)*, pp. 5471-5477, December 2016.

16. T. S. Clawson, S. Ferrari, S. B. Fuller, R. J. Wood, "Spiking Neural Network (SNN) Control of a Flapping Insect-scale Robot," *Proc. of the IEEE Conference on Decision and Control (CDC)*, pp. 3381-3388, December 2016.

17. V. Hernandez-Bennetts, A. J. Lilienthal, E. Schaffernicht, S. Ferrari, and J. Albertson, "Integrated Simulation of Gas Dispersion and Mobile Sensing Systems," *Workshop on Realistic, Rapid and Repeatable Robot Simulation (R4SIM) at RSS*, Rome, Italy, July 2015.

18. P. Zhu, H. Wei, W. Lu, and S. Ferrari, "Multi-kernel probability distribution regressions," *Proc. of the International Joint Conference on Neural Networks (IJCNN)*, pp. 1-7, 2015.

19. D. Hu, X. Zhang, Z. Xu, S. Ferrari, and P. Mazumder, "Digital implementation of a spiking neural network (SNN) capable of spike-timing-dependent plasticity (STDP) learning," *Proc. of the IEEE 14th International Conference on Nanotechnology (IEEE-NANO)*, pp. 873-876, 2014.

20. H. Wei, W. Lu, P. Zhu, S. Ferrari, R. H. Klein, S. Omidshafiei, and J. P. How, "Camera Control For Learning Nonlinear Target Dynamics via Bayesian Nonparametric Dirichlet-Process Gaussian-Process (DP-GP) Models," *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014)*, September 2014, Chicago, IL, pp. 95-102.

21. H. Wei, W. Lu, P. Zhu, G. Huang, J. Leonard, and S. Ferrari, "Optimized Visibility Motion Planning for Target Tracking and Localization," *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014)*, September 2014, Chicago, IL, pp. 76-82.

22. D. Hu, X. Zhang, Z. Xu, S. Ferrari, and P. Mazumder "Digital Implementation of a Spiking Neural Network (SNN) Capable of Spike-Timing-Dependent Plasticity (STDP) Learning," *Proc. of the IEEE International Conference on Nanotechnology*, Toronto, Canada, August 2014, pp. 873-876.

23. A. C. Bellini, W. Lu, R. Naldi, and S. Ferrari, "Information driven path planning and control for collaborative aerial robotic sensors using artificial potential functions," *Proc. of the American Control Conference*, Portland, OR, June 2014, pp. 590-597.

24. X. Zhang, Z. Xu, C. Henriquez, and S. Ferrari, "Spike-Based Indirect Training of a Spiking Neural Network (SNN)-Controlled Virtual Insect," *Proc. of the IEEE Conference on Decision and Control*, Florence, Italy, December 2013, pp. 6798-6805.

25. W. Lu and S. Ferrari, "An Approximate Dynamic Programming Approach for Model-free Control of Switched Systems," *Proc. of the IEEE Conference on Decision and Control*, Florence, Italy, December 2013, pp. 3837-3844.

26. H. Wei, W. Ross, S. Varisco, P. Krief, and S. Ferrari, "Modeling of Human Driver Behavior via Receding Horizon and Artificial Neural Network Controllers," *Proc. of the IEEE Conference on Decision and Control*, Florence, Italy, December 2013, pp. 6778-6785.

27. K. Rudd, G. Foderaro, and S. Ferrari, "A Generalized Reduced Gradient Method for the Optimal Control of Multiscale Dynamical Systems," *Proc. of the IEEE Conference on Decision and Control*, Florence, Italy, December 2013, pp. 3857-3863.

28. A. Swingler and S. Ferrari, "On the Duality of Robot and Sensor Path Planning," *Proc. of the IEEE Conference on Decision and Control*, Florence, Italy, December 2013, pp. 984-989.

29. D. Zielinski, R. McMahan, W. Lu, and S. Ferrari, "Intercept Tags: Enhancing Intercept-based Systems," *Proc. of the 19th ACM Symposium on Virtual Reality Software and Technology*, Singapore, October 2013, pp. 263-266.

30. P. Cruz, R. Fierro, W. Lu, S. Ferrari, and T. A. Wettergren, "Maintaining Robust Connectivity in Heterogeneous Robotic Networks," *Proc. of SPIE*, Conference on Unmanned Systems Technology, Session on Intelligent Behaviors, Baltimore, MD, April 2013, Vol. 8741 (doi: 10.1117/12.2016236).

31. D. Zielinski, R. McMahan, W. Lu, and S. Ferrari, "ML2VR: Providing MATLAB Users an Easy Transition to Virtual Reality and Immersive Interactivity," *IEEE Virtual Reality Conference*, Orlando, FL, March 2013.

32. H. Wei, W. Lu, and S. Ferrari, "An Information Value Function for Nonparametric Gaussian Processes," *Proc. Neural Information Processing Systems Conference*, Lake Tahoe, NV, December 2012.

33. G. Foderaro, S. Ferrari, and M. Zavlanos, "A Decentralized Kernel Density Estimation Approach to Distributed Robot Path Planning," *Proc. Neural Information Processing Systems Conference*, Lake Tahoe, NV, December 2012.

34. G. Foderaro, A. Swingler, and S. Ferrari, "A Model-based Cell Decomposition Approach to Online Pursuit-Evasion Path Planning and the Video Game Ms. Pac-Man," *Proc. IEEE Conference on Computational Intelligence and Games*, Granada, Spain, September 2012, pp. 281-287.

35. G. Zhang, S. Ferrari, and W. Lu, "A Comparison of Information Theoretic Functions for Tracking Maneuvering Targets," invited paper, *Proc. IEEE Statistical Signal Processing Workshop (SSP)*, Ann Arbor, MI, August 2012, pp. 149-152.

36. D. Tolic, R. Fierro and S. Ferrari, "Optimal Self-Triggering for Nonlinear Systems via Approximate Dynamic Programming," *Proc. IEEE Multi-Conference on Systems and Control (MSC), IEEE International Conference on Control Applications (CCA)*, Dubrovnik, Croatia, October 2012, pp. 879-884.

37. W. Lu, S. Ferrari, R. Fierro, and T. Wettergren, "Approximate Dynamic Programming (ADP) Recurrence Relationships for a Hybrid Optimal Control Problem," invited paper, *Proc. of SPIE*, Vol. 8387 83870C-2, Unmanned Systems Technology XIII, Session on Intelligent Behaviors, Baltimore, MD, April 2012.

38. W. Lu, H. Wei, and S. Ferrari, "A Kalman-Particle Filter for Estimating the Number and State of Multiple Targets," *Proc. International Conference on Management Sciences and Information Technology*, Changsha, China, July 2012.

39. S. Ferrari, M. Anderson, R. Fierro, and W. Lu, "Cooperative Navigation for Heterogeneous Autonomous Vehicles via Approximate Dynamic Programming," invited paper, *Proc. of the IEEE Conference on Decision and Control*, Orlando, FL, December 2011, pp. 121-127.

40. G. Foderaro, V. Raju, and S. Ferrari, "A Cell Decomposition Approach to Online Evasive Path Planning and the Video Game Ms. Pac-Man," invited paper, *Proc. IEEE Multi-Conference on Systems and Control (MSC)*, Denver, CO, September 2011.

41. W. Lu, G. Zhang, S. Ferrari, R. Fierro, and I. Palunko, "An information potential approach for tracking and surveilling multiple moving targets using mobile sensor agents," *Proc. SPIE Conference*, Unmanned Systems Technology XIII, Orlando, FL, 2011.

42. G. Foderaro, C. Henriquez, and S. Ferrari, "Indirect Training of a Spiking Neural Network for Flight Control via Spike-Timing-Dependent Synaptic Plasticity," *Proc. IEEE Conference on Decision and Control*, Atlanta, GA, 2010, pp. 911-917.

43. G. Foderaro and S. Ferrari, "Necessary Conditions for Optimality for a Distributed Optimal Control Problem," *Proc. IEEE Conference on Decision and Control*, Atlanta, GA, 2010, pp. 4831-4838.

44. B. Bernard and S. Ferrari, "A Geometric Transversals Approach to Track Coverage of Maneuvering Targets," *Proc. IEEE Conference on Decision and Control*, Atlanta, GA, 2010, pp. 1243-1249.

45. A. Swingler and S. Ferrari, "A Cell Decomposition Approach to Cooperative Path Planning and Collision Avoidance," *Proc. IEEE Conference on Decision and Control*, Atlanta, GA, 2010, pp. 6329-6336.

46. S. Ferrari and G. Daugherty, "A Q-Learning Approach to Automated Unmanned Air Vehicle (UAV) Demining," *Proc. SPIE Conference on Security and Sensing*, Orlando, FL, 2010.

47. S. Ferrari, G. Foderaro, and A. Tremblay "A Probability Density Function Approach to Distributed Sensors' Path Planning," *Proc. IEEE Conference on Robotics and Automation*, Anchorage, Alaska, 2010, pp. 432-439.

48. S. Ferrari and G. Foderaro, "A Potential Field Approach to Finding Minimum-Exposure Paths in Wireless Sensor Networks," *Proc. IEEE Conference on Robotics and Automation*, Anchorage, Alaska, 2010, pp. 335-341.

49. W. Lu, G. Zhang, and S. Ferrari, "A randomized hybrid system approach to coordinated robotic sensor planning," *Proc. IEEE Conference on Decision and Control*, Atlanta, GA, 2010, pp. 3857-3864.

50. S. Ferrari, R. Fierro, and D. Tolic, "A Geometric Optimization Approach to Tracking Maneuvering Tracking Using a Heterogeneous Mobile Sensor Network," *Proc. IEEE Conference on Decision and Control*, Shanghai, China, December 2009, pp. 1080-1087.

51. G. Zhang and S. Ferrari, "An Adaptive Artificial Potential Function Approach for Geometric Sensing," *Proc. IEEE Conference on Decision and Control*, Shanghai, China, December 2009, pp. 7903 - 7910.

52. G. Di Muro and S. Ferrari, "Penalty Function Method for Exploratory Adaptive-Critic Neural Network Control," *Proc. Mediterranean Conference on Control and Automation* (MED'09), Thessaloniki, Greece, January 2009, pp. 1410-1414.

53. D. Tolic, R. Fierro, and S. Ferrari, "Cooperative multi-target tracking via hybrid modeling and geometric optimization," *Proc. Mediterranean Conference on Control and Automation* (MED'09), Thessaloniki, Greece, January 2009, pp. 440-445.

54. G. Di Muro and S. Ferrari, "A Constrained Backpropagation Approach to Solving Partial Differential Equations in Nonstationary Environments," *Proc. International Joint Conference on Neural Networks*, Atlanta, GA, 2009, pp. 685-689.

55. R. Fierro, C. Cai, and S. Ferrari, "An Information-Driven Framework for Motion Planning in Robotic Sensor Networks: Complexity and Experiments," *Proc. IEEE Conference on Decision and Control*, Cancun, MX, 2008, pp. 483-489.

56. C. Cai and S. Ferrari, "A Q-Learning Approach to Developing an Automated Computer Player for the Board Game of CLUE," *Proc. International Joint Conference on Neural Networks*, Hong Kong, 2008, pp. 2347-2353.

57. G. Di Muro and S. Ferrari, "A Constrained-Optimization Approach to Training Neural Networks for Smooth Function Approximation and System Identification," *Proc. International Joint Conference on Neural Networks*, Hong Kong, 2008, pp. 2354-2360.

58. S. Ferrari, B. Mehta, G. Di Muro, A. M.J. VanDongen, and C. Henriquez, "Biologically Realizable Reward-Modulated Hebbian Training for Spiking Neural Networks," *Proc. International Joint Conference on Neural Networks*, Hong Kong, 2008, pp. 1781-1787.

59. C. Cai and S. Ferrari, "Bayesian Network Modeling of Acoustic Sensor Measurements" *Proc. IEEE Sensors Conference*, Atlanta, GA, 2007, pp. 345-348.

60. S. Ferrari, C. Cai, R. Fierro, and B. Perteet, "A Multi-Objective Optimization Approach to Detecting and Tracking Dynamic Targets in Pursuit-Evasion Games," *Proc. American Control Conference*, New York, NY, 2007, pp. 5316-5321.

61. K. C. Baumgartner and S Ferrari, "Optimal Placement of a Moving Sensor Network for Track Coverage," *Proc. American Control Conference*, New York, NY, 2007, pp. 4040-4046.

62. C. Cai and S. Ferrari, "Comparison of Information-Theoretic Functions for Decision Support in Sensor Fusion and Classification," *Proc. American Control Conference*, New York, NY, 2007, pp. 63-133.

63. R. Chandramohan, J. Steck, and S. Ferrari, "On the Development of an Adaptive Critic Reconfigurable Flight Controller," AIAA 2005-7038, *Proc. Infotech@Aerospace*, Arlington, VA, April 2007.

64. C. Cai and S. Ferrari, "On the Development of an Intelligent Computer Player for CLUE: A Case Study in Preposterior Decision Analysis," *Proc. American Control Conference*, Minneapolis, MN, 2006, pp. 4350-4355.

65. S. Ferrari, "Track Coverage in Sensor Networks," *Proc. American Control Conference*, Minneapolis, MN, 2006, pp. 2053-2059.

66. S. Ferrari and M. Jensenius, "Robust and Reconfigurable Flight Control by Neural Networks," AIAA 2005-7037, *Proc. Infotech@Aerospace*, Arlington, VA, September 2005.

67. B. K. Crews, S. Ferrari, and C. G. Salfati, "Bayesian Network Modeling of Offender Behavior for Criminal Profiling," *Proc. IEEE Conference on Decision and Control*, Seville, Spain, 2005, pp. 2702-2709.

68. M. Qian and S. Ferrari, "Control of Distributed Sensors by Dynamic Bayesian Networks," *Proc. SPIE Symposium on Smart Structures and Materials*, San Diego, CA, 2005, pp. 85-96.

69. A. Vaghi and S. Ferrari, "Sensor Network Management by a Graphical Model Approach," *Proc. European Conference on Structural Control*, Vienna, Austria, July 2004.

70. S. Ferrari and R. F. Stengel, "An Adaptive Critic Global Controller," *Proc. American Control Conference*, Anchorage, AK, 2002, pp. 2665- 2670.

71. S. Ferrari and R. F. Stengel, "Algebraic Training of a Neural Network," *Proc. American Control Conference*, Arlington, VA, 2001, pp. 1605-1610.

72. S. Ferrari and R. F. Stengel, "Classical/Neural Synthesis of Nonlinear Control Systems," *Proc. AIAA Guidance, Navigation, and Control Conference*, Denver, CO, August 2000.

73. Y. Crispin and S. Ferrari, "Model-Reference Adaptive Control of Chaos in Periodically Forced Dynamical Systems," *Proc. AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Bellevue, WA, September 1996.

Peer-Reviewed Conference Abstracts

1. B. Doerr, R. Linares, P. Zhu, and S. Ferrari, "Random Finite Set Theory and Optimal Control for Large Swarms of Spacecraft," *29th AAS/AIAA Space Flight Mechanics Meeting*, Hawaii, 2019.

2. S. Ferrari, X. Zhang, and C. Henriquez, "Spike-Based Training for Neural Control of Insect Locomotion," *The Seventeenth Yale Workshop on Adaptive and Learning Systems*, New Haven, CT, June 2015.

3. P. Zhu, K. Rafie, S. Ferrari, J. Beck, T. Egner, M. A. Sommer, "Measuring and Manipulating Satisficing Decision Strategies in Models, Humans, and Monkeys," *Neuroscience 2014*, Washington, DC, November 2014.

4. J. Albertson, S. Ferrari, G. Katul, T. A. Foster-Wittig, and E. Thoma, "Bayesian Estimation of Fugitive Methane Point Source Emission Rates from a Single Downwind High-Frequency Gas Sensor," *Air and Waste Management Association Annual Conference and Exhibition*, Long Beach, CA, June 2014.

5. H. Oh, P. Zhu, K. Rafie, M. Sommer, S. Ferrari, J. Beck, and T. Egner, "Satisficing decision-making under time pressure," *Cognitive Neuroscience Society Annual Meeting*, Boston, MA, April 2014.

GRANT AND CONTRACT SUPPORT

Support Obtained as PI or co-PI

1. "Cornell-Unibo Věho Institute on Vehicle Intelligence," Cornell Tech, New York (NY), January 4, 2020 – January 3, 2030, Italian Academic Center and Honors Center of Italian Universities (H2CU). Amount: €1,600,00. Directors: S. Ferrari and F. Ubertini (Unibo).

2. "Spike-Based Learning and Control for Multimodal Agile Sensory Integration and Behavior," August 14, 2019 – August 15, 2022, AFOSR, Multidisciplinary University Research Initiative (MURI). Amount: $414,999. PI: S. Ferrari, co-PI: S. Sponberg (Georgia Tech).

3. "I-Corps: Control for Visual Scene Perception," June 15, 2019 – December 30, 2019, NSF Division Of Industrial Innovation & Partnerships. Amount: $50,000. PI: S. Ferrari, co-PIs: Jake Gemerek, Brian Wang, Elisa Miller-Out (Cornell University).

4. "Adaptive Multiview Planning for Maximum Information Value in Autonomous Sonar Imaging," December 1, 2018 – November 30, 2021, ONR, Ocean Sensing and Systems Applications Division. Amount: $565,794. PI: S. Ferrari.

5. "A Unified Framework for Decentralized Multi-Agent Perception and Planning via Finite-Set Stochastic Optimal Control," July 15, 2018 – July 14, 2022, ONR, Science of Artificial Intelligence Program. Amount: $1,924,397. PI: F. Zhang (Georgia Tech), co-PIs: S. Ferrari and S. Scherer (Carnegie Mellon).

6. "I-Corps: Neuromorphic Target Tracking and Control for Insect-scale Aerial Vehicles," July 1, 2018 – January 1, 2019, NSF Division Of Industrial Innovation & Partnerships. Amount: $50,000. PI: S. Ferrari, co-PIs: Taylor Clawson and Bo Fu (Cornell University).

7. "Developing and Simulating Optimal Satellite Constellation Control for Multi-Target Tracking and Space Situational Awareness," September 15, 2017 – September 14, 2019, Sandia National Laboratories. Amount: $150,000. PI: K. A. LeGrand (Sandia), co-PI: S. Ferrari.

8. "Surveillance Evasion and Threat Avoidance," September 1, 2017 – October 31, 2020, NSF Division of Mathematical Sciences, Algorithms for Threat Detection (ATD) Program. Amount: $400,000. PI: A. Vladimirsky (Cornell University), co-PI: S. Ferrari.

9. "Event-based Integrated Sensorimotor Planning and Control for Insect-scale Robots," July 1, 2017 – June 30, 2021, ONR, Aerospace Science Research Division. Amount: $1,022,160. PI: S. Ferrari, co-PI: R. Wood (Harvard University).

10. "Convolutional-Feature Analysis and Control for Mobile Visual Scene Perception," February 1, 2017 – January 31, 2021, ONR, Mathematics, Computer and Information Sciences Division. Amount: $1,710,380. PI: S. Ferrari, co-PIs: M. Campbell and K. Weinberger (Cornell University).

11. "Analysis, Control, and Estimation for Multiscale Adaptive Sensor Systems," May 1, 2016 – July 31, 2019, ONR, Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $476,236. PI: S. Ferrari.

12. "Information-driven Guidance and Control of Heterogenous Underwater Sensor Networks for Adaptive Target Detection and Classification," August 1, 2015 – July 31, 2018, ONR, Ocean Sensing and Systems Applications Division. Amount: $482,492. PI: S. Ferrari.

13. "Collaborative Research: A Neurodynamic Programming Approach for the Modeling, Analysis, and Control of Nanoscale Neuromorphic Systems," September 1, 2012 – August 31, 2017, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $345,000. PI: S. Ferrari.

14. "Collaborative Research: A Distributed Approximate Dynamic Programming (ADP) Approach for Robust Adaptive Control of Multiscale Dynamical Systems," June 1, 2014 – July 31, 2017, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $419,201. PIs: S. Ferrari and Y. Kevrekidis (Princeton University), co-PIs: J. Albertson and H. Gavin (Duke University).

15. "MRI: Acquisition of a High-Resolution Stereoscopic Interactive Visualization System for Research and Education in Science, Engineering and the Humanities," August 1, 2014 – July 31, 2015, NSF, Division of Behavioral and Cognitive Sciences. Amount: $399,720. PI: R. Kopper (Duke University), co-PIs: K. LaBar and S. Ferrari (Duke University).

16. "Development of a Human Pilot Model for Autonomous Driving of Vehicle Models and Reproducing Behavior of Ferrari Drivers," November 15, 2013 – November 14, 2015, Ferrari S.p.A., Veicolo Group. Amount: $84,155. PI: S. Ferrari.

17. "Biophysical Modeling of Satisficing Control Strategies as Derived from Quantification of Primate Brain Activity and Psychophysics," September 1, 2013 – August 31, 2017, ONR, Program on Science of Autonomy. Amount: $960,000. PI: S. Ferrari, co-PIs: M. Sommer and T. Egner (all at Duke University).

18. "Collaborative Research: Memristor-Based Adaptive Critic Design for Sensorimotor Learning and Control," September 1, 2012 – August 31, 2015, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $345,000. PI: S. Ferrari.

19. "IGERT: Training Program in Wireless Intelligent Sensor Networks (WISeNet)," September 1, 2010 – August 31, 2015, NSF, Graduate Education Division. Amount: ∼$3.1M. PI: S. Ferrari, co-PIs: J. Albertson, G. Katul, R. Parr, and P. Agarwall (all at Duke University).

20. "MURI: Nonparametric Bayesian Models to Represent Knowledge Uncertainty for Decentralized Planning," September 1, 2010 – August 31, 2015, ONR, Topic: Knowledge Representation and Reasoning for Decentralized Autonomy. Amount: ∼$7M. PI: J. How (MIT), co-PIs: L. Carin (Duke University), J. Leonard (MIT), N. Roy (MIT), T. Darrell (UCB), M. Jordan (UCB), M. Wainright (UCB), J. Fisher (MIT), A. Willsky (MIT), and S. Ferrari.

21. "A Distributed Optimal Control Approach to Managing Risk and Uncertainty in Multi-Agent Systems," November 1, 2010 – October 31, 2013, ONR, Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $353,552. PI: S. Ferrari.

22. "Collaborative Research: An Adaptive Dynamic Programming Approach to the Coordination of Heterogeneous Robotic Sensors Networks," September 15, 2010 – October 31, 2013, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $274,448. PI: S. Ferrari.

23. "Adaptive Dynamic Planning and Control Algorithms for Multi-Sensor and Multi-Searcher ASW Missions (SBIR Phase II)," October 1, 2009 – September 1, 2012, ONR, Persistent Littoral Undersea Surveillance (PLUS) Innovative Naval Prototype (INP). Amount: $502,346. PI: S. Ferrari.

24. "Analysis and Design of Cultured Neuronal Networks for Adaptive and Reconfigurable Control," October 1, 2009 – September 1, 2012, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $429,909. PI: S. Ferrari, co-PIs: C. Henriquez (Duke University), A. VanDongen (Duke University).

25. "Stochastic Optimal Control of Cooperative Sensor Networks for Underwater Surveillance," October 1, 2008 – September 30, 2011, ONR, Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $521,867. PI: S. Ferrari.

26. "A Constrained-Optimization Approach to Preserving Prior Knowledge in Neural-Network Modeling and Control of Dynamical Systems," July 2008 – June 2011, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $322,112. PI: S. Ferrari.

27. "Optimal Predictions of Ecohydrologic Processes in Semiarid Ecosystems: Multi-sensor Fusion and Multi-scale Data Assimilation," June 2008 – May 2011, NASA Science Mission Directorate, Earth Science Division. Amount: $715,217. PI: J. Albertson (Duke University), co-PIs: H. Shughart (University of Virginia), E. Wood (Princeton University), and S. Ferrari.

28. "Optimal Control of Mobile Sensor Networks," February 2008 - January 2009, ONR Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $119,587. PI: S. Ferrari.

29. "Parametric Control of Underwater Gliders for Acoustic Sensing," September 2007 – January 2008, ONR Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $19,937. PI: S. Ferrari.

30. "CAREER: Robust Adaptive Control, Demonstrated for Reconfigurable Flight Control," June 2005 – May 2010, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $400,000. PI: S. Ferrari.

31. "Adaptive Sensor Management and Situation Assessment for Surveillance Systems," June 2004 – May 2007, ONR Young Investigator Award, Ocean, Atmosphere and Space, Sensing and Systems Division. Amount: $274,136. PI: S. Ferrari.

32. "Analysis and Design of a Global Adaptive Critic Controller," May 2003 – April 2005, NSF, Division of Electrical and Communication Systems, Program on Control, Networks and Computational Intelligence. Amount: $167,745. PI: S. Ferrari.

33. "Modeling of Distributed Space-based Sensors," June 2003 – May 2004, NC Space Grant Consortium Research Seed Award, 2003. Amount: $5,000. PI: S. Ferrari.

PROFESSIONAL SERVICE ACTIVITIES

- Co-organizer, Workshop on Autonomous Vehicles: What Could Possibly Go Wrong?, Cornell Tech, New York, NY, 2020.
- Invited Participant and Speaker, Workshop on Social Dynamics Beyond Vehicle Autonomy, Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, CA, 2020.
- Member, Program Committee, IEEE Conference on Decision and Control, Jeju, Jeju Island, Korea, 2020.
- Invited Participant, Eighteenth Yale Workshop on Adaptive and Learning Systems, Center for Systems Science Dunham Laboratory, Yale University, New Haven (CT), 2019.
- Member, Program Commitee, Second Workshop on Informative Path Planning and Adaptive Sampling, Robotics: Science and Systems (RSS) Conference WIPPAS, University of Freiburg, Freiburg im Breisgau, Germany, 2019.
- Invited Participant and Speaker, Workshop on Informative Path Planning and Adaptive Sampling, IEEE International Conference on Robotics and Automation (ICRA), Brisbane, Australia, 2018.
- Invited Member, Air Force S&T 2030 Expert Panel: Robotics and Autonomous Systems, Arlington (VA), 2018.
- Organizer, Invited Session, Large Scale Autonomous Robotics, Milwaukee (WI), 2018.

- Member, Provost Faculty Advisory Committee on Tenure Appointments, Cornell University, 2018-present.
- Member, University Faculty Committee Program Review, Cornell University, 2018-present.
- Invited Member, ONR Panel on Long Duration Autonomy, Perception and Intelligent Control Topic, Arlington (VA), 2017.
- Invited Participant, Neuromorphic Cognition Engineering Workshop, Neuromorphic Approaches to Drone Autonomy Topic, Institute of Neuromorphic Engineering (INE), Telluride (CO), 2017.
- Invited Participant, Eighteenth Yale Workshop on Adaptive and Learning Systems, Center for Systems Science Dunham Laboratory, Yale University, New Haven (CT), 2017.
- Invited Member, ONR Panel on Future of Autonomy, Perception and Intelligent Control Topic, Arlington (VA), 2016.
- Member, Program Committee, IEEE Conference on Decision and Control, 2016.
- Member and Partner, mAIRsure, 2016-present.
- Invited Participant and Speaker, NSF Minisymposium on PDE Models and Control of Swarm Dynamics, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, (AZ), 2015.
- Invited Participant, ONR Mine Counter Measure Autonomy, Annual Program Review, since 2015.
- Member, Advisory Board, Smart collaboration between Humans and ground-aErial Robots for imProving rescuing activities in Alpine Environments (SHERPA), European Commission, FP7-ICT, Integrated Project, since 2013.
- Organizer, NSF IGERT WISeNet Annual Workshop, Duke University, 2012-2014.
- Liaison, Nondisclosure Agreement (NDA), Duke University – Ferrari S.p.A., Maranello (MO), Italy.
- Invited Participant, ONR Science of Autonomy Annual Meeting, since 2014.
- Invited Participant, ONR Unmanned Maritime Systems Technology (UMST), Annual Program Review, since 2013.
- Invited Participant, ONR Maritime Sensing Discovery and Innovation, Annual Program Review, since 2005.
- Invited Participant, ONR Persistent Littoral Underwater Surveillance (INP) Program Review, 2008-2010.
- Invited participant, NSF EFRI COPN Workshop on Cognitive Optimization and Prediction: From Neural Systems to Neurotechnology, Arlington, (VA), December 2011.
- Liaison, Memorandum of Understanding (MO), Duke University – Environmental Protection Agency (EPA), RTP, Raleigh, NC.
- Liaison, Education Partnership Agreement (EPA) on *Sensor Network Technology*, Duke University – Naval Undersea Warfare Center (NUWC), Newport, RI, since 2010.
- Organizer and Editor, Special Issue on Approximate Dynamic Programming and Reinforcement Learning, Journal of Control Theory and Applications, March 2011.

- Member, Organizing Committee, National Academy of Engineering German-American Frontiers of Engineering Symposium (GAFOE), Potsdam, Germany, April 2009.
- Organizer, Special Session on Approximate Dynamic Programming, Mediterranean Control Conference (MED 09), Thessaloniki, Greece, June 2009.
- Invited Speaker, National Academy of Engineering German-American Frontiers of Engineering Symposium (GAFOE), Irvine (CA), 2008.
- Member, Program Committee, IEEE International Symposium on Approximate Dynamic Programming and Reinforcement Learning (ADPRL), since 2007.
- Member, Program Committee, Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, SPIE Symposium on Smart Structures and Materials, March 2005.
- Invited Participant, National Academy of Engineering's U.S. Frontiers of Engineering Symposium, GE Global Research, Schenectady (NY), 2005.
- Member, Committee of Visitors, National Science Foundation, Civil and Mechanical Systems Division, March 2004.
- Member, Review Panel, NSF Division of Civil and Mechanical Systems, Sensors Technology, since 2004.
- Member, Review Panel, NSF Division of Civil and Mechanical Systems, Dynamics and Control, since 2004.
- Member, Review Panel, NSF Division of Electrical and Computer Engineering, Control, Networks, and Computational Intelligence, since 2003.
- Invited participant, ONR Maritime Sensing (MS) Yearly Program Review, since 2006.
- Invited participant, NSF Workshop on Approximate Dynamic Programming, Cocoyoc, Mexico, April 2006.
- Invited participant, ONR workshop on Distributed ASW Sensor Employment and Evolution, NASA Stennis Space Center, July 2004.
- Invited participant, ESF-NSF workshop on Advancing Technological Frontiers for Feasibility of Ageless Structures, Strasbourg, France, October 2003.
- Invited participant, NSF workshop on Learning and Approximate Dynamic Programming, Playacar, Mexico, April 2002.
- Grant panelist and reviewer for NSF, ONR, AFOSR, Army, and NASA.
- Reviewer for several archival journals, including: *Journal of Marine Science and Engineering (JMSE)*, *Autonomous Robots (AURO)*, *International Journal of Neural Systems (IJNS)*, *Sensors*, *IEEE Transactions on Automatic Control*, *IEEE Transactions on Robotics*, *Automatica*, *IEEE Transactions on System, Man, and Cybernetics*, *IEEE Transactions on Control Systems Technology*, *IEEE Transactions on Mechatronics*, *IEEE Transactions on Neural Networks*, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *AIAA Journal of Guidance, Control, and Dynamics*, *IEEE Transactions on Aerospace and Electronic Systems*, *Neurocomputing*, *Journal of Dynamic Systems, Measurement and Control.*

INVITED PRESENTATIONS

1. "Analysis and Control of Multi-scale Adaptive Sensor Systems," ONR Maritime Sensing Fundamental Research Review, Naval Postgraduate School, Monterey (CA), August 2019.
2. "Event-based Sensing and Control," ONR Science of Autonomy Program Review, Double Tree Crystal City, Arlington (VA), August 2019.
3. "CAREER: Award winner in neural networks, machine learning and computational intelligence," Special NSF Career panel, IJCNN, Budapest, Hungary, 2019.
4. "Distributed Pursuit-Evasion Games for Mobile Monitoring and Surveillance," 19th Yale Workshop on Adaptive and Learning Systems, Yale University, New Haven (CT), June 2019.
5. "Stochastic Distributed Optimal Dual Control: A Unified Framework for Decentralized Multi-agent Perception and Planning (SDODC)," ONR Science of Artificial Intelligence Kickoff, Hilton Arlington, VA, February 2019.
6. "Convolutional-feature Analysis and Control for Mobile Visual Scene Perception," ONR BRC Program Review, Hilton Arlington, VA, February 2019.
7. "Event-based Sensorimotor Planning and Control," ONR Unmanned Maritime Systems Technology (UMST) Program Review, Miramar Beach, FL, January 2019.
8. "Collaborative Research: Smart Buildings Occupancy and Environmental Modeling and Prediction," Rudin Management Company, New York City, NY, November 2018.
9. "Multitarget-Multisensor Information-driven Sensor Planning via Finite Set Statistics (FISST)," Sandia National Laboratories, Center 6700: Monitoring Systems, Albuquerque, NM, September 2018.
10. "Multi-scale Adaptive Sensor Systems," ONR Maritime Sensing - Discovery & Invention (D&I) Review, Naval Surface Warfare Center (NSWC), Carderock, MD, August 2018.
11. "Mobile Scene Perception via Convolutional Neural Networks," ONR Science of Autonomy Program Review, Key Bridge Marriott, Arlington, VA, August 2018.
12. "Robotic Olfaction with Applications to Gas Hyperspectral Imaging," Rebellion Photonics, Inc., Houston, TX, August 2018.
13. "A Deep Learning Approach to Modeling Expected Entropy Reduction in Imaging Sonar," SIAM Conference on Imaging Science, *Symposium on Applications of Imaging Modalities beyond the Visible Spectrum*, Bologna, Italy, June 2018.
14. "SONAR Imaging ATR and Path Planning," International Mine Warfare Technology Symposium, Monterey, CA, May 2018.
15. *Keynote Talk:* "Information-driven Planning and Control," Workshop on Informative Path Planning and Adaptive Sampling, 2018 IEEE International Conference on Robotics and Automation (ICRA 2018), Brisbane, Australia, May 2018.
16. "Distributed Optimal Control (DOC) of Multi-agent Systems," Monash University, Clayton Campus, VIC, Australia, May 2018.
17. "Sensing and Searching for Information Under Pressure," Department of Mechanical and Aerospace at Buffalo, State University of New York, Amherst, NY, November 2017.

18. "Distributed Optimal Control of Multiscale Sensor Systems," Department of Mechanical Engineering, University of Minnesota Minneapolis, MN, October 2017.

19. "Immersive Satisficing Treasure Hunts," ONR Science of Autonomy Program Review, Arlington, VA, August 2017.

20. "Multiscale Adaptive Sensing - Mapping and Estimation," ONR Maritime Sensing Discovery and Innovation Review, Naval Surface Warfare Center (NSWC), Carderock, MD, August 2017.

21. "Il Futuro degli Studi in Ingegneria," Convegno sul Futuro dell'Ingegneria, Universita degli Studi di Perugia, Perugia, Italy, June 2017.

22. "Distributed Optimal Control of Multiscale Dynamical Systems," Yale Workshop on Adaptive and Learning Systems, Center for Systems Science, Dunham Laboratory, Yale University, New Haven, CT, June 2017.

23. "Neuromorphic Planning and Control of Insect-scale Robots," University of Washington Paul G. Allen School of Computer Science and Engineering Robotics Colloquium, Seattle, WA, May 2017 .

24. "Satisficing Control Strategies in Distributed Search and Classification," ONR Unmanned Maritime Systems Technology, Autonomy Session, Miramar Beach, FL, January 2017.

25. "Multiscale Adaptive Sensor Systems," ONR Maritime Sensing Discovery and Innovation Review, Naval Surface Warfare Center (NSWC), Carderock, MD, August 2016.

26. "Biophysical Modeling of Satisficing Control Strategies as Derived from Quantification of Primate Brain Activity and Psychophysics," ONR Science of Autonomy Program Review, Arlington, VA, August 2016.

27. "Adaptive Control of Multiscale Dynamical Systems," Scientific Computing and Numerics (SCAN) Seminar Series, Cornell University, Ithaca, NY, October 2016.

28. "Adaptive Control of Multiscale Dynamical Systems," Minisymposium on PDE Models and Control of Swarm Dynamics, SIAM Conference on Analysis of Partial Differential Equations, Doubletree Resort by Hilton, Paradise Valley Scottsdale, Scottsdale, AZ, December 2015.

29. "Adaptive Control of Multiscale Dynamical Systems," Department of Electrical, Electronic and Information Engineering *Guglielmo Marconi*, University of Bologna, Bologna, Italy, December 2015.

30. "Information-driven Planning and Control for Target Acquisition and Classification," Naval Surface Warfare Center (NSWC) Colloquium, NSWC Base, Panama City, FL, November 2015.

31. "Spike-based Learning and Neurocontrol," Yale Workshop on Adaptive and Learning Systems, Center for Systems Science, Dunham Laboratory, Yale University, New Haven, CT, June 2015.

32. "Information-driven Planning and Control for Autonomous Agents," Keynote Speaker, euRathlon/SHERPA Summer School 2015 On Field Robotics, Oulu, Finland, June 2015.

33. "Information-driven Planning and Control of Multi-agent Dynamical Systems," Department of Mechanical and Aerospace Engineering, Missouri University of Science and Technology, Rolla, MO, April 2015.

34. "Gaussian Processes Performance Bounds for Decentralized Control with Intermittent Communications," ONR MURI Year 3 Review Meeting, MIT, Boston (MA), September 2014.

35. "Biophysical Modeling of Satisficing Control Strategies as Derived from Quantification of Primate Brain Activity and Psychophysics," ONR Science of Autonomy Meeting Arlington (VA), August 2014.

36. "A Distributed Optimal Control Approach to Managing Risk and Uncertainty in Multi-agent Systems," ONR Maritime Sensing D&I Review, Space & Naval Warfare Systems Center Pacific, San Diego (CA), August 2014.

37. "Distributed Optimal Control for Mobile Robotic Networks," Department of Electrical and Computer Engineering, McGill University, Montreal, Quebec, August 2014.

38. "Distributed Optimal Control for Target Tracking," Workshop on Distributed Control and Estimation for Robotic Vehicle Networks 2014 Robotics: Science and Systems Conference, Berkeley (CA), July 2014.

39. "Information-driven Sensor Path Planning for Mobile Monitoring of Source Emissions," Department of Computer Science, University of Örebro, Örebro, Sweden, May 2014.

40. "Information-driven Planning and Control for Active and Mobile Sensing," Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca (NY), April 2014.

41. "Information-driven Planning and Control for Active and Mobile Sensing," Department of Mechanical and Aerospace Engineering, Case Western Reserve University, Cleveland (OH), April 2014.

42. "Information-driven Planning and Control for Active and Mobile Sensing," Department of Aerospace Engineering Texas A&M University, College Station (TX), April 2014.

43. "Information-driven Planning and Control for Active and Mobile Sensing," Coordinated Science Laboratory, University of Illinois at Urbana-Champaign, Urbana (IL), March 2014.

44. "Information-driven Sensorimotor Planning and Control for Active and Mobile Sensing," Cockrell School of Engineering, The University of Texas at Austin, Austin (TX), March 2014.

45. "Information-driven Sensorimotor Planning and Control," Department of Electrical Engineering, Harvard University, Cambridge (MA), February 2014.

46. "Information-driven Sensorimotor Planning and Control," Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles (CA), February 2014.

47. "Information-driven Learning and Control for Nonparametric Bayesian Models," ONR Unmanned Maritime Systems Technology Program Review, Panama City Beach (FL), January 2014.

48. "Decentralized Stochastic Planning for Nonparametric Bayesian Models," ONR MURI Year 2 Review Meeting, MIT, Boston (MA), January 2014.

49. "Distributed Optimal Control of Multi-agent Dynamical Systems," Dipartimento di Ingegneria Enzo Ferrari, Universita degli Studi di Modena e Reggio Emilio, Modena (MO), Italy, December 2013.

50. "Duke Graduate Training in Wireless Intelligent Sensor Networks (WISeNet)," North Carolina Central University (NCCU), Durham (NC), October 2013.

51. "Distributed Optimal Control for Multi-agent Trajectory Optimization," Naval Undersea Warfare Center (NUWC), Newport (RI), September 2013.

52. "IGERT on Wireless Intelligent Sensor Networks," U.S. Environmental Protection Agency (EPA) National Risk Management Research Laboratory, Research Triangle Park (NC), May 2013.

53. "Human Driver Modeling via Artificial Neural Networks," Veicolo Group, Ferrari S.p.A., Maranello (MO), Italy, January 2013.

54. "Decentralized Stochastic Planning via Approximate Dynamic Programming," ONR MURI Year 1 Review Meeting, MIT, Boston (MA), October 2012.

55. "Distributed Optimal Control Approach to Managing Risk and Uncertainty in Multi-agent Systems," ONR Maritime Sensing (MS) Program Review, BAE Systems - Navy Yard Conference Facility, Washington D.C., August 2012.

56. "NSF IGERT: Wireless Intelligent Sensor Networks (WISeNet)," NSF IGERT Kickoff Meeting, Duke University, Durham (NC), August 2012.

57. "NSF IGERT: Wireless Intelligent Sensor Networks (WISeNet)," Dipartimento di Ingegneria del Territorio, University of Cagliari, Italy, June 2012.

58. "Information-driven Sensor Path Planning for Mobile Monitoring of Source Emissions," NSF 2012 IGERT Annual Meeting Technical Science Session on Computation, Sensing, and Devices Capital Hilton, Washington D.C., May 2012.

59. "Information-driven Sensor Motion Planning," GRASP Seminar Series, University of Pennsylvania, Philadelphia (PA), December 2011.

60. "Analysis and design of spiking neural networks for adaptive control: Indirect training for in-vitro and in-silico implementations," NSF EFRI COPN Workshop on Cognitive Optimization and Prediction: From Neural Systems to Neurotechnology, Arlington (VA), December 2011.

61. "Decentralized Stochastic Planning via Approximate Dynamic Programming," ONR MURI Kickoff Meeting, MIT, Boston (MA), September 2011.

62. "Distributed Optimal Control of Multi-agent Systems," ONR Maritime Sensing D&I Review, Naval Station Newport (RI), August 2011.

63. "Geometric Path Planning and Control of Mobile Sensor Networks," Office of Naval Research, Science of Autonomy Program, Arlington (VA), August 2010.

64. "Distributed Optimal Control," Office of Naval Research, Maritime Sensing Program, Arlington (VA), April 2010.

65. "Optimal Control of Mobile Sensor Networks," Princeton University, Department of Mechanical and Aerospace Engineering, Princeton (NJ), November 2009.

66. "Intelligent Control of Aircraft and Airborne Sensors," University of Florida, Department of Mechanical and Aerospace Engineering, Gainesville (FL), November 2009.

67. "Optimal Control of Sensor Distributions," ONR Persistent Littoral Underwater Surveillance (INP) Program Review, SPAWAR Systems Center Pacific - Bayside, San Diego (CA), October 2009.

68. "Geometric Path Planning for Cooperative Sensor Networks," Duke University, Artificial Intelligence Seminar Series, Department of Computer Science, Durham (NC), October 2009.

69. "Intelligent Control of Aircraft and Mobile Sensor Networks," Texas A&M University, Department of Aerospace Engineering, College Station (TX), April 2009.

70. "Adaptive Path Planning for Cooperative Sensor Networks," BAE Systems, Nashua (NH), April 2009.

71. "Geometric Path Planning for Cooperative Sensor Networks," University of New Mexico, Department of Electrical and Computer Engineering, Albuquerque (NM), November 2008.

72. "Optimal Control of Cooperative Sensor Networks for Underwater Surveillance," ONR Persistent Littoral Underwater Surveillance (INP) Program Review, Systems Planning and Analysis (SPA), Alexandria (VA), October 2008.

73. "Optimal Control of Mobile Sensor Networks," ONR Maritime Sensing (MS) Program Review, Naval Postgraduate School, Monterey (CA), August 2008.

74. "Network Models of Criminal Behavior," Triangle Center on Terrorism and Homeland Security, Durham, NC, March 2007.

75. "Adaptive Sensor Management and Situation Assessment for Underwater Surveillance Systems," ONR Maritime Sensing (MS) Program Review, Naval Station Newport (RI), August 2006.

76. "Neural Networks and Adaptive Critics," Federal Aviation Administration (FAA) Center for Excellence, Wichita State University, May 2006.

77. "Adaptive Nonlinear Flight Control," NSF Workshop on Approximate Dynamic Programming, Cocoyoc, Mexico, April 2006.

78. "Intelligent Control of Complex Systems," Department of Aerospace Engineering University of Michigan, Ann Arbor (MI), March 2006.

79. "The History and Future of Flight Controls," Reunions Panel Discussion, Princeton University, Princeton (NJ), May 2005.

80. "Criminal Profiling by Neural Networks," 1st Congress on Investigative Psychology, Rome, Italy, March 2005.

81. "Multidimensional Control Applications," NASA Stennis Space Center (MS), July 2004.

82. "Network Models for Criminal Profiling," FBI Academy: Behavioral Science Unit, Quantico (VA), June 2004.

83. "Sensor Management by a Graphical Model Approach," Office of Naval Research, Arlington (VA), December 2003 and June 2004.

84. "Algebraic and Adaptive Learning in Neural Control Systems," Department of Mechanical Engineering, Johns Hopkins University, Baltimore (MD), February 2004.

85. "Algebraic and Adaptive Learning in Neural Control Systems," Department of Electrical and Computer Engineering, NC State University, Raleigh (NC), October 2002.

86. "Reconfigurable Aircraft Control by Neural Control Systems," Department of Aeronautics and Astronautics, Stanford University, Stanford (CA), April 2002.

87. "Algebraic and Adaptive Learning in Aircraft Control Systems," Department of Mechanical Engineering, MIT, Cambridge (MA), March 2002.

88. "Algebraic and Adaptive Learning in Neural Control Systems," Department of Aeronautical and Astronautical Engineering, UIUC, Urbana (IL), February 2002.

89. "An Adaptive Critic Global Controller," Department of Mechanical and Nuclear Engineering, Penn State University, University Park (PA), February 2002.

90. "Algebraic and Adaptive Learning in Neural Control Systems," Department of Aerospace and Ocean Engineering, Virginia Tech, Blacksburg (VA), February 2002.

91. "Reconfigurable Aircraft Control by Neural Control Systems," Department of Aerospace Engineering, University of Maryland, College Park (MD), January 2002.

92. "Algebraic and Adaptive Learning in Neural Control Systems," Department of Mechanical and Aerospace Engineering, Cornell University, Ithaca (NY), January 2002.

93. "Reconfigurable Aircraft Control by Neural Control Systems," Dipartimento di Elettronica e Informazione, Politecnico di Milano, Italy, December 2001.

94. "Algebraic and Adaptive Learning in Neural Control Systems," Institute of Computational Sciences, ETH Zurich, Switzerland, December 2001.

95. "An Adaptive Critic Global Controller," Aerospace and Ocean Engineering Department Seminar, Virginia Tech, Blacksburg (VA), October 2001.

96. "Large-Angle Maneuvering Using Adaptive Critic Control," FAA/NASA Joint University Program Review, Ohio University, Athens (OH), June 2001.

97. "Adaptive Critic Design for Aircraft Control," National Science Foundation Program Review, Princeton University, Princeton (NJ), January 2001.

98. "Adaptive Critic Design for Aircraft Control," FAA/NASA Joint University Program Review, MIT, Cambridge (MA), January 2001.

99. "Exploring the Multidimensional Steady Flight Envelope of a Business Jet Aircraft," FAA/NASA Joint University Program Review, FAA William J. Hughes Technical Center, Atlantic City (NJ), October 2000.

100. "Non-Symmetrical Trim of a Business Jet Aircraft," FAA/NASA Joint University Program Review, Ohio University, Athens (OH), June 2000.

101. "Training Forward Neural Networks for Flight Control," FAA/NASA Joint University Program Review, Princeton University (NJ), April 2000.

102. "Training a Proportional Neural Network Controller," FAA/NASA Joint University Program Review, MIT, Cambridge (MA), October 1999.

103. "On an Initialization Technique for Neural Network Control Systems," FAA/NASA Joint University Program Review, NASA Ames, Moffett Field (CA), June 1998.

Other Presentations

1. "Věho: Cornell-Unibo Institute on Vehicle Intelligence," Věho Inauguration, Cornell Tech, Roosevelt Island, New York City, NY, November 2019.

2. "A Generalized Reduced Gradient Method for the Optimal Control of Multiscale Dynamical Systems," IEEE Conference on Decision and Control, Florence, Italy, December 2013.

3. "A Q-Learning Approach to Automated Unmanned Air Vehicle (UAV) Demining," SPIE Conference on Security and Sensing, Orlando, FL, 2010.

4. "A Multi-Objective Optimization Approach to Detecting and Tracking Dynamic Targets in Pursuit-Evasion Games," American Control Conference, New York, NY, July 2007.

5. "Track Coverage in Sensor Networks," American Control Conference, Minneapolis, MN, July 2006.

6. "Robust and Reconfigurable Flight Control by Neural Networks," Infotech@Aerospace, Arlington, VA, September 2005.

7. "An Adaptive Critic Global Controller," American Control Conference, Anchorage, AK, July 2002.

8. "Algebraic Training of a Neural Network," American Control Conference, Arlington, VA, July 2001.

9. "Classical/Neural Synthesis of Nonlinear Control Systems," AIAA Guidance, Navigation, and Control Conference, Denver, CO, August 2000.

10. "Model-Reference Adaptive Control of Chaos in Periodically Forced Dynamical Systems," AIAA/ USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Bellevue, WA, September 1996.

11. "Adaptive control of chaos induced capsizing of a ship," Artificial Neural Networks in Engineering (ANNIE) Conference, St. Louis, MO, November 1995.

SELECTED MEDIA RECOGNITION

- "Intelligent Control for Autonomous Robots," by Tina Snead, Cornell Research, February 20, 2020 (https://research.cornell.edu/video/intelligent-control-autonomous-robots).

- "Veho Institute launches, establishes center at Cornell Tech," by Erin Philipson, Cornell Chronicle, December 10, 2019 (http://news.cornell.edu/stories/2019/12/veho-institute-launches-establishes-center-cornell-tech).
- "Luniversit italiana alla conquista dellAmerica: a New York nasce lItalian Academic Center," Unibo Magazine, November 26, 2019.
- "Study explores moth brains to improve drone flight," by Melanie Lefkowitx, Cornell Chronicle, September 24, 2019.
- "Industrial methane emissions are underreported," by Amanda Garris, Cornell Chronicle, June 6, 2019.
- Daily: Verona Network by Matteo Scolari , May 6, 2019 (https://en.calameo.com/read/00581054092d1293aabc2).
- "Hal 9000 guarito e lotta insieme a noi," by Barbara Salazer, il Nazionale, Verona, May 15, 2019.
- "Tedx, Silvia Ferrari: L'intelligenza artificiale vola, ma l'etica ferma," by Manuela Trevisani, LArena, May 5, 2019.
- "Silvia Ferrari e le frontiere (anche interpretative) dei robot al TEDxVerona," Pantheon Verona, veronanetwork.it (https://daily.veronanetwork.it/tag/tedxverona-2019/).
- "Do robots dreams of electric sheep?" by Silvia Ferrari, TEDxVerona, Palazzo della Gran Guardia, Verona, Italy (`https://youtu.be/q17o_BK_Vmo`).
- "AI ♡ WOMEN: Leaders of Artificial Intelligence," Book by Manuela Linary, Egea Publisher, Milan, Italy, winner of the Diversity Media Awards (DMA), by phd, Media Network of the Year, April 2019.
- "Autonomous Vehicles for Air, Land, and Sea," by Tina Snead, Cornell Research, March 2, 2018 (https://research.cornell.edu/news-features/autonomous-vehicles-air-land-and-sea).
- "AI Love Women" by Marialuisa Pezzali, *Il Sole - Programma PHD*, February Issue, 2018.
- "Brain-mimicking Neuromorphic Computer Chips," *NAE Frontiers of Engineering*, Media and News, January 8, 2018.
- "Float Like a Robot, Think Like a Bee" by Billy Hurley, *Tech Briefs*, January 3, 2018.
- "Pest control: Eggheads work to help RoboBees dodge that fly-swatter" by Richard Priday, *The Register, UK*, December 15, 2017.
- "Robots Form Surveillance Teams" by Eric Butterman, *ASME.org*, September, 2017.
- "Intelligenza artificiale e modelli matematici: il sogno (realizzato) della professoressa italiana negli States," by Andrea de Cesco, *Corriere della Sera*, May 8, 2017.
- "These surveillance robots will work together to chase down suspects," by April Glaser, *recode*, April 18, 2017.
- "Scientists built an AI that is really, really good at Ms. Pac-Man," by Mike Wehner, *BGR*, January 18, 2017

- "Cette IA est imbattable Miss Pac-Man," La Redaction, Toms Guide (FR), January 22, 2017.
- "Could Ms. Pac-Man train the next generation of military drones?" by Simon Parkin, *The New Yorker*, March 29, 2017.
- "Engineers Model Better Navigation Systems After Brain's Adaptibility," by Cecile J. Gonzales, National Science Foundation, *Live Science*, May 31, 2014.
- "Artificial Brains Learn to Adapt: Neural networks imitate intelligence in biological brains," by Sarah Bates, National Science Foundation, *Where Discoveries Begin*, May 15, 2014, Washington D.C..
- "Italians train with Durham police" by S. Chambers Jr., Crime & Safety - *News & Observer*, May 16, 2009, North Carolina.
- "Be Served on a Platter" by P. Hari, *The Telegraph*, April 13, 2009, Calcutta, India.
- "Desarrollan un robot que captura objetivos en movimiento" by R. Morales, *Tendencias de la Ingeniería*, April 21, 2009, Spain.
- "Swimming Pool Game 'Marco Polo' Used to Develop Robot Control," *Science Daily*, March 25, 2009.
- "'Marco Polo' Game Helps Guide Robot Movements," *Herald Sun*, NC, March 22, 2009.
- "Quand les capteurs collaborent, les robots attrapent leur cible," *L'Atelier*, Applications IT, March 20, 2009, France.
- "'Marco Polo' Game Develops Robot Control, Search Techniques" by K. Fogarty, *Robotic Trends*, March 18, 2009.
- "Clue Gamesmanship Leads to New Remote-Sensing Algorithm," *Math in the News*, January 28, 2009.
- "Robot Mine Sweeper Gets Help From Clue Game Strategies," *Science Daily*, February 19, 2009.
- "Game could offer 'Clue' about landmines" by V. Calloway, *WRAL-TV*, January 30, 2009, Raleigh, NC.
- "Game Provides Clue to Improving Remote Sensing," *Remote-Scan*, January 28, 2009.
- "Popular mystery game inspires sensor algorithm," *R&D Magazine*, January 28, 2009, Rockaway, NJ.

(Articles and web links available upon request)

COURSES TAUGHT

Undergraduate Courses

- ME125, Measurement and Modeling of Dynamic Systems (given in Spring 2003, Spring 2004, Spring 2005, Fall 2006, and Fall 2007)

- ME 125, Feedback Control of Dynamic Systems (developed in Fall 2008, given Fall 2008, Fall 2009, and Fall 2010)
- ME 344, Feedback Control of Dynamic Systems (given in Fall 2012, Fall 2013, and Fall 2014)

Graduate Courses

- ME 265, Special Topics in Intelligent Systems (given in Fall 2003, Fall 2005, and Spring 2007)
- ME 233, Intelligent Systems (developed and given in Spring 2008, and Spring 2009)
- ME 555-6, Special Topics in Intelligent Sensors (developed and given in Spring 2013)
- ME 759-01, Special Readings in Mechanical Engineering - Wireless Intelligent Sensor Networks (WISeNet) Seminar Course (developed and given in Spring 2013)
- MAE 6780, Multivariable Control Theory (Spring 2016, 2017, 2018, 2020)
- MAE 6790, Intelligent Sensor Planning and Control (Fall 2016, 2017, 2019)

GRADUATE STUDENT SUPERVISION

Ph.D. Dissertations Supervised and Funded

1. Rui Luo, *Biologically Inspired Neuromorphic Sensing and Control*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2024.
2. Keith LeGrand, *Space-based Sensing and Control via Finite-Set Statistics (FISST)*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2023.
3. Qingze Huo *Mobile Decentralized Perception and Action Recognition*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2023.
4. Junyi Dong *Decentralized Perception via Random Finite Sets*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2023.
5. Hengye Yang, *Sensing and Control of Airflow-robot Interactions*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2022.
6. Yucheng Chen, *Collaborative Path Planning for Plant-imaging Autonomous Vehicles*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2022.
7. Jaejeong Shin, *Minimum Time Image-based Searches*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2022.
8. Shi Chang, *Feature Estimation in Imaging Sonar*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2022.
9. Jake Gemerek, *Distributed Surveillance by Mobile Autonomous Sensors*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2021.
10. Taylor Clawson, *Learning Control for Autonomous Micro-aerial Vehicles*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, degree expected in 2020.
11. Hongchuan Wei, *Non-parametric Bayesian Models for Decentralized Sensor Path Planning*, Department of Mechanical Engineering and Materials Science, Duke University, June 2016.

12. Xu Zhang, *Adaptive Control by Spiking Neural Networks*, Department of Mechanical Engineering and Materials Science, Duke University, November 2016.
13. Wenjie Lu, *An Approximate Dynamic Programming Approach for Adaptive Control of Hybrid Systems*, Department of Mechanical Engineering and Materials Science, Duke University, October 2014.
14. Greg Foderaro, *Adaptive Control of Airborne Sensors for Target Detection, Classification, and Tracking*, Department of Mechanical Engineering and Materials Science, Duke University, October 2013.
15. Keith Rudd, *Adaptive Solution of Partial Differential Equations via Constrained Backpropagation (CPROP)*, Department of Mechanical Engineering and Materials Science, Duke University, August 2013.
16. Guoxian Zhang, *An Integrated Online Path Planning and Control Approach for Robotic Sensor Networks*, Department of Mechanical Engineering and Materials Science, Duke University, December 2010.
17. Chenghui Cai, *Information-Driven Sensor Path Planning and the Treasure Hunt Problem*, Department of Mechanical Engineering and Materials Science, Duke University, May 2008.
18. Kelli C. Baumgartner, *Control and Optimization of Track Coverage in Underwater Sensor Networks*, Department of Mechanical Engineering and Materials Science, Duke University, May 2008.

Masters Theses Supervised

1. Shenghao Liu, *Bayesian Nonparametric Modeling of Vision-based Perception*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, expected May 2020.
2. Yifeng Shi, *Vision-based Autonomous Taxiing in Crowded Airport Environments*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, expected May 2020.
3. Xinyu Gao, *Camera Control for Mobile Target Detection and Tracking*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, expected May 2020.
4. Dongheng Jing, *Sparse Identification of Nonlinear Dynamical Systems*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, expected May 2020.
5. Zhihao Liao, *Three-dimensional Optical Flow for Action Recognition and Prediction*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, expected May 2020.
6. Quanxing Lu, *A POMDP Approach to Underwater Robot Path Planning for Multi-view Multi-target Classification*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, December 2018.
7. Min Zheng, *A Probabilistic Approach to Autonomous Path Planning for Directional Mobile Sensors*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, August 2018.
8. Zeyu Liu, *A Cell Decomposition Approach to Autonomous Path Planning for Directional Mobile Sensors*, Sibley School of Mechanical and Aerospace Engineering, Cornell University, May 2018.
9. Xu Zhang, *Indirect Training Algorithms for Spiking Neural Networks Controlled Virtual Insect Navigation*, Department of Mechanical Engineering and Materials Science, Duke University, June 2015.

10. Stephen Greyson Daugherty, *A Q-Learning Approach to Minefield Characterization from Unmanned Aerial Vehicles*, Department of Mechanical Engineering and Materials Science, Duke University, July 2012.
11. Ashleigh Swingler, *A Cell Decomposition Approach to Robotic Trajectory Planning via Disjunctive Programming*, Department of Mechanical Engineering and Materials Science, Duke University, April 2012.
12. Wenjie Lu, *An Information-Driven Approach for Multiple Mobile Sensor Agent (MSA) Path Planning*, Department of Mechanical Engineering and Materials Science, Duke University, September 2011.
13. Gianluca Di Muro, *Constrained Backpropagation for Solving Partial and Ordinary Differential Equations*, Department of Mechanical Engineering and Materials Science, Duke University, November 2011.
14. Hersh Tapadia, *Stochastic Optimal Control of Mobile Sensor Networks*, Department of Electrical and Computer Engineering, Duke University, November 2011.
15. Kelli C. Baumgartner, *Bayesian Network Modeling of Offender Behavior for Criminal Profiling*, Department of Mechanical Engineering and Materials Science, Duke University, degree completed in May 2005.
16. Mark A. Jensenius, *Constrained Learning in Neural Control Systems*, Department of Mechanical Engineering and Materials Science, Duke University, degree completed in May 2005.
17. Alberto Vaghi, *Sensor Management by Graphical Model Approach*, Department of Electrical Engineering, Politecnico di Milano, January 2004.

Other Graduate Students Supervised

1. Zvonimir Stojanovski, Sibley School of Mechanical and Aerospace Engineering, Cornell University.
2. Matthew Davidow, Center for Applied Mathematics, Cornell University.
3. Julian Morelli, Sibley School of Mechanical and Aerospace Engineering, Cornell University.
4. Drew Mitchner, Department of Mechanical and Aerospace Engineering, Cornell University, MEng awarded December 2018.
5. Haritha Muralidharan, Department of Electrical and Computer Engineering, Cornell University, MEng awarded December 2018.
6. Bernardo Fichera, Department of Aeronautical Engineering, Polytechnic University of Milan, M.S. awarded in June 2016.
7. Ziye Xu, Department of Biomedical Engineering, Duke University, M.S. awarded in May 2013.
8. Ming Qian, Department of Electrical and Computer Engineering, Duke University, 2003–2004, Ph.D. awarded in May 2008.

POSTDOCTORAL ASSOCIATE MENTORING

1. Taylor Clawson, Sibley School of Mechanical and Aerospace Engineering, Cornell University, 2019-present.

2. Pingping Zhu, Research Associate, Sibley School of Mechanical and Aerospace Engineering, Cornell University, 2015-present; Postdoctoral Associate, Department of Mechanical Engineering and Materials Science, Duke University, 2012-2014.
3. Chang Liu, Sibley School of Mechanical and Aerospace Engineering, Cornell University, 2017-2019.
4. Bo Fu, Sibley School of Mechanical and Aerospace Engineering, Cornell University, 2017-2018.
5. Greg Foderaro, Department of Mechanical Engineering and Materials Science, Duke University, 2013-2014.
6. Wenjie Lu, Department of Mechanical Engineering and Materials Science, Duke University, 2014.
7. Guoxian Zhang, Department of Mechanical Engineering and Materials Science, Duke University, 2010.
8. Bin Xian, Department of Electrical and Computer Engineering, Clemson University, 2004-2005.