Stanford

Marco Pavone

Associate Professor of Aeronautics and Astronautics and, by courtesy, of Electrical Engineering and of Computer Science

CONTACT INFORMATION

- **Administrator**

  Renee Quiroz - Administrative Associate

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Bio

BIO

Dr. Marco Pavone is an Assistant Professor of Aeronautics and Astronautics at Stanford University, where he is the Director of the Autonomous Systems Laboratory and Co-Director of the Center for Automotive Research at Stanford. Before joining Stanford, he was a Research Technologist within the Robotics Section at the NASA Jet Propulsion Laboratory. He received a Ph.D. degree in Aeronautics and Astronautics from the Massachusetts Institute of Technology in 2010. His main research interests are in the development of methodologies for the analysis, design, and control of autonomous systems, with an emphasis on self-driving cars, autonomous aerospace vehicles, and future mobility systems. He is a recipient of several awards, including a Presidential Early Career Award for Scientists and Engineers from President Barack Obama, an ONR Young Investigator Award, an NSF CAREER Award, and a NASA Early Career Faculty Award. He was identified by the American Society for Engineering Education (ASEE) as one of America's 20 most highly promising investigators under the age of 40. His work has been recognized with best paper nominations or awards at the International Conference on Intelligent Transportation Systems, at the Field and Service Robotics Conference, at the Robotics: Science and Systems Conference, and at NASA symposia.

ACADEMIC APPOINTMENTS

- Associate Professor, Aeronautics and Astronautics
- Associate Professor (By courtesy), Electrical Engineering
- Associate Professor (By courtesy), Computer Science
- Member, Institute for Computational and Mathematical Engineering (ICME)

HONORS AND AWARDS

- PECASE Award, White House (2017)
- YIP Award, ONR (2017)
- CAREER Award, NSF (2015)
- Frontiers of Engineering Program, National Academy of Engineering (2013)
- Early Career Faculty award, NASA (2012)
- Hellman Faculty Scholar Award, Hellman Fellows Fund (2012)

- NIAC Fellow, NASA (2011)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- Ph.D., MIT , Aeronautics and Astronautics (2010)

Teaching

COURSES

2019-20

- Optimal and Learning-based Control: AA 203 (Spr)
- Principles of Robot Autonomy I: AA 174A, AA 274A, CS 237A, EE 260A (Aut)
- Principles of Robot Autonomy II: AA 174B, AA 274B, CS 237B, EE 260B (Win)
- Robotics and Autonomous Systems Seminar: AA 289, CS 529 (Aut, Win)

2018-19

- Introduction to Aeronautics and Astronautics: AA 100 (Aut)
- Optimal and Learning-based Control: AA 203 (Spr)
- Principles of Robotic Autonomy: AA 274 (Win)
- Robotics and Autonomous Systems Seminar: AA 289 (Aut, Win, Spr)

2017-18

- Introduction to Aeronautics and Astronautics: AA 100 (Aut)
- Introduction to Optimal Control and Dynamic Optimization: AA 203 (Spr)
- Principles of Robotic Autonomy: AA 274 (Win)
- Robotics and Autonomous Systems Seminar: AA 289 (Win, Spr)

2016-17

- Introduction to Aeronautics and Astronautics: AA 100 (Aut)
- Introduction to Optimal Control and Dynamic Optimization: AA 203 (Spr)
- Principles of Robotic Autonomy: AA 274 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Maxime Bouton, Matthew Brown, Anthony Corso, Eric Cristofalo, Christopher Dembia, Tushar Goel, Tommaso Guffanti, Haruki Nishimura, Aman Sinha, Nathan Spielberg, John Subosits, Arul Suresh, Patrick Washington

Orals Chair

Laura Matloff

Postdoctoral Faculty Sponsor

Riccardo Bonalli, Mauro Salazar Villalon, Kiril Solovey, Kaidi Yang

Orals Evaluator

Maxime Bouton

Doctoral Dissertation Advisor (AC)

Andrew Bylard, Abhishek Cauligi, James Harrison, Boris Ivanovic, Benoit Landry, Karen Leung, Thomas Lew, Joseph Lorenzetti, Spencer Richards, Apoorva Sharma, Matthew Tsao

Master's Program Advisor

Milan Bidare, Jeremy Crowley, Karen Leung, Zixi Liu, Ryan Loper, Juan Martinez, Kevin Okseniuk, Paul Planeix, Neethu Renjith, Manuel Retana, Stephanie Schneider, Chelsea Sidrane, Jialong Wang, Thomas White

Doctoral Dissertation Co-Advisor (AC)

Sandeep Chinchali

Publications

PUBLICATIONS

- **Multi-objective optimal control for proactive decision making with temporal logic models** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Chinchali, S. P., Livingston, S. C., Chen, M., Pavone, M.
  2019
- **An Asymptotically-Optimal Sampling-Based Algorithm for Bi-directional Motion Planning.** *Proceedings of the ... IEEE/RSJ International Conference on Intelligent Robots and Systems. IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Starek, J. A., Gomez, J. V., Schmerling, E., Janson, L., Moreno, L., Pavone, M.
  ; 2015: 2072–78
- **A Framework for Time-Consistent, Risk-Sensitive Model Predictive Control: Theory and Algorithms** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
  Singh, S., Chow, Y., Majumdar, A., Pavone, M.
  2019; 64 (7): 2905–12
- **Robot Motion Planning in Learned Latent Spaces** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Ichter, B., Pavone, M.
  2019; 4 (3): 2407–14
- **A real-time framework for kinodynamic planning in dynamic environments with application to quadrotor obstacle avoidance** *ROBOTICS AND AUTONOMOUS SYSTEMS*
  Allen, R. E., Pavone, M.
  2019; 115: 174–93
- **A BCMP network approach to modeling and controlling autonomous mobility-on-demand systems** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Iglesias, R., Rossi, F., Zhang, R., Pavone, M.
  2019; 38 (2-3): 357–74
- **Backpropagation for Parametric STL**
  Leung, K., Arechiga, N., Pavone, M., IEEE
  IEEE.2019: 185–92
- **Perception-Constrained Robot Manipulator Planning for Satellite Servicing**
  Zahroof, T., Bylard, A., Shageer, H., Pavone, M., IEEE
  IEEE.2019
- **Reduced Order Model Predictive Control For Setpoint Tracking**
  Lorenzetti, J., Landry, B., Singh, S., Pavone, M., IEEE
  IEEE.2019: 299–306
- **A Congestion-aware Routing Scheme for Autonomous Mobility-on-Demand Systems**
  Salazar, M., Tsao, M., Aguiar, I., Schiffer, M., Pavone, M., IEEE
  IEEE.2019: 3040–46

- **Risk-Sensitive Generative Adversarial Imitation Learning**
  Lacotte, J., Ghavamzadeh, M., Chow, Y., Pavone, M., Chaudhuri, K., Sugiyama, M.
  MICROTOME PUBLISHING.2019

- **BaRC: Backward Reachability Curriculum for Robotic Reinforcement Learning**
  Ivanovic, B., Harrison, J., Sharma, A., Chen, M., Pavone, M., IEEE, Howard, A., Althoefer, K., Arai, F., Arrichiello, F., Caputo, B., Castellanos, J., Hauser, K., et al
  IEEE.2019: 15–21

- **Model Predictive Control of Ride-sharing Autonomous Mobility-on-Demand Systems**
  Tsao, M., Milojevic, D., Ruch, C., Salazar, M., Frazzoli, E., Pavone, M., IEEE, Howard, A., Althoefer, K., Arai, F., Arrichiello, F., Caputo, B., Castellanos, J., et al
  IEEE.2019: 6665–71

- **GuSTO: Guaranteed Sequential Trajectory Optimization via Sequential Convex Programming**
  Bonalli, R., Cauligi, A., Bylard, A., Pavone, M., IEEE, Howard, A., Althoefer, K., Arai, F., Arrichiello, F., Caputo, B., Castellanos, J., Hauser, K., Isler, Kim, et al
  IEEE.2019: 6741–47

- **Beyond The Force: Using Quadcopters to Appropriate Objects and the Environment for Haptics in Virtual Reality**
  Abtahi, P., Landry, B., Yang, J., Pavone, M., Follmer, S., Landay, J. A., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2019

- **Risk-sensitive inverse reinforcement learning via semi- and non-parametric methods** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Singh, S., Lacotte, J., Majumdar, A., Pavone, M.
  2018; 37 (13-14): 1713–40

- **Routing autonomous vehicles in congested transportation networks: structural properties and coordination algorithms**
  Rossi, F., Zhang, R., Hindy, Y., Pavone, M.
  SPRINGER.2018: 1427–42

- **The Team Surviving Orienteers problem: routing teams of robots in uncertain environments with survival constraints** *AUTONOMOUS ROBOTS*
  Jorgensen, S., Chen, R. H., Milam, M. B., Pavone, M.
  2018; 42 (4): 927–52

- **Monte Carlo Motion Planning for Robot Trajectory Optimization Under Uncertainty**
  Janson, L., Schmerling, E., Pavone, M., Bicchi, A., Burgard, W.
  SPRINGER INTERNATIONAL PUBLISHING AG.2018: 343–61

- **Cellular Network Traffic Scheduling with Deep Reinforcement Learning**
  Chinchali, S., Hu, P., Chu, T., Sharma, M., Bansal, M., Misra, R., Pavone, M., Katti, S., AAAI
  ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2018: 766–74

- **Reach-Avoid Games Via Mixed-Integer Second-Order Cone Programming**
  Lorenzetti, J., Chen, M., Landry, B., Pavone, M., IEEE
  IEEE.2018: 4409–16

- **Stochastic Model Predictive Control for Autonomous Mobility on Demand**
  Tsao, M., Iglesias, R., Pavone, M., IEEE
  IEEE.2018: 3941–48

- **Cooperative Object Transport in 3D with Multiple Quadrotors using No Peer Communication**
  Wang, Z., Singh, S., Pavone, M., Schwager, M., IEEE
  IEEE COMPUTER SOC.2018: 1064–71

- **Learning Sampling Distributions for Robot Motion Planning**
  Ichter, B., Harrison, J., Pavone, M., IEEE
  IEEE COMPUTER SOC.2018: 7087–94

- **Multimodal Probabilistic Model-Based Planning for Human-Robot Interaction**
  Schmerling, E., Leung, K., Vollprecht, W., Pavone, M., IEEE
  IEEE COMPUTER SOC.2018: 3399–3406

- **Data-Driven Model Predictive Control of Autonomous Mobility-on-Demand Systems**
  Iglesias, R., Rossi, F., Wang, K., Hallac, D., Leskovec, J., Pavone, M., IEEE
  IEEE COMPUTER SOC.2018: 6019–25

- **Reach-Avoid Problems via Sum-of-Squares Optimization and Dynamic Programming**
  Landry, B., Chen, M., Hemley, S., Pavone, M., Kosecka, J., Maciejewski, A. A., Okamura, A., Bicchi, A., Stachniss, C., Song, D. Z., Lee, D. H., Chaumette, F., Ding, et al
  IEEE.2018: 4325–32

- **Generative Modeling of Multimodal Multi-Human Behavior**
  Ivanovic, B., Schmerling, E., Leung, K., Pavone, M., Kosecka, J., Maciejewski, A. A., Okamura, A., Bicchi, A., Stachniss, C., Song, D. Z., Lee, D. H., Chaumette, F., Ding, et al
  IEEE.2018: 3088–95

- **Gravimetric Localization on the Surface of Small Bodies**
  Hockman, B., Reid, R. G., Nesnas, I. D., Pavone, M., IEEE
  IEEE.2018

- **Risk-Constrained Reinforcement Learning with Percentile Risk Criteria** *JOURNAL OF MACHINE LEARNING RESEARCH*
  Chow, Y., Ghavamzadeh, M., Janson, L., Pavone, M.
  2018; 18

- **Deterministic sampling-based motion planning: Optimality, complexity, and performance** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Janson, L., Ichter, B., Pavone, M.
  2018; 37 (1): 46–61

- **Deterministic Sampling-Based Motion Planning: Optimality, Complexity, and Performance**
  Janson, L., Ichter, B., Pavone, M., Bicchi, A., Burgard, W.
  SPRINGER INTERNATIONAL PUBLISHING AG.2018: 507–25

- **Fast, Safe, Propellant-Efficient Spacecraft Motion Planning Under Clohessy-Wiltshire-Hill Dynamics** *JOURNAL OF GUIDANCE CONTROL AND DYNAMICS*
  Starek, J. A., Schmerling, E., Maher, G. D., Barbee, B. W., Pavone, M.
  2017; 40 (2): 418-438

- **Design, Control, and Experimentation of Internally-Actuated Rovers for the Exploration of Low-gravity Planetary Bodies** *JOURNAL OF FIELD ROBOTICS*
  Hockman, B. J., Frick, A., Reid, R. G., Nesnas, I. A., Pavone, M.
  2017; 34 (1): 5-24

- **Experimental Methods for Mobility and Surface Operations of Microgravity Robots**
  Hockman, B., Reid, R. G., Nesnas, I. D., Pavone, M., Kulic, D., Nakamura, Y., Khatib, O., Venture, G.
  SPRINGER INTERNATIONAL PUBLISHING AG.2017: 752–63

- **Extreme Engineering: Extreme Autonomy in Space and Air, on Land, and Under Water**
  Jackson, D., Pavone, M., Natl Acad Engn
  NATL ACADEMIES PRESS.2017: 31–32

- **The Matroid Team Surviving Orienteers Problem: Constrained Routing of Heterogeneous Teams with Risky Traversal**
  Jorgensen, S., Chen, R. H., Milam, M. B., Pavone, M., Bicchi, A., Okamura, A.
  IEEE.2017: 5622–29

- **The Risk-Sensitive Coverage Problem: Multi-Robot Routing Under Uncertainty with Service Level and Survival Constraints**
  Jorgensen, S., Chen, R. H., Milam, M. B., Pavone, M., IEEE
  IEEE.2017

- **Control of robotic mobility-on-demand systems: A queueing-theoretical perspective** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Zhang, R., Pavone, M.
  2016; 35 (1-3): 186-203

- **Chance-constrained dynamic programming with application to risk-aware robotic space exploration** *AUTONOMOUS ROBOTS*
  Ono, M., Pavone, M., Kuwata, Y., Balaram, J.
  2015; 39 (4): 555-571

- **Optimal Sampling-Based Motion Planning under Differential Constraints: the Drift Case with Linear Affine Dynamics.** *Proceedings of the ... IEEE Conference on Decision & Control. IEEE Conference on Decision & Control*
  Schmerling, E., Janson, L., Pavone, M.
  2015; 2015: 2574-2581

- **Fast marching tree: A fast marching sampling-based method for optimal motion planning in many dimensions** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Janson, L., Schmerling, E., Clark, A., Pavone, M.
  2015; 34 (7): 883-921

- **Trading Safety Versus Performance: Rapid Deployment of Robotic Swarms With Robust Performance Constraints** *JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME*
  Chow, Y., Pavone, M., Sadler, B. M., Carpin, S.
  2015; 137 (3)

- **Fast Marching Tree: a Fast Marching Sampling-Based Method for Optimal Motion Planning in Many Dimensions.** *The International journal of robotics research*
  Janson, L., Schmerling, E., Clark, A., Pavone, M.
  2015; 34 (7): 883–921

- **Optimal Sampling-Based Motion Planning under Differential Constraints: the Driftless Case.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  Schmerling, E., Janson, L., Pavone, M.
  2015; 2015: 2368–75

- **A Unifying Framework for Time-Consistent, Risk-Averse Model Predictive Control: Theory and Algorithms**
  Chow, Y., L., Pavone, M.
  2014

- **A Machine Learning Approach for Real-Time Reachability Analysis** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Allen, R. E., Clark, A. A., Starek, J. A., Pavone, M.
  IEEE.2014: 2202–2208

- **A Framework for Time-Consistent, Risk-Averse Model Predictive Control: Theory and Algorithms** *American Control Conference*
  Chow, Y., Pavone, M.
  IEEE.2014: 4204–4211

- **Toward a Systematic Approach to the Design and Evaluation of Automated Mobility-on-Demand Systems: A Case Study in Singapore** *2nd Annual Workshop on Road Vehicle Automation*
  Spieser, K., Treleaven, K., Zhang, R., Frazzoli, E., Morton, D., Pavone, M.
  SPRINGER INT PUBLISHING AG.2014: 229–245

- **Asymptotically Optimal Algorithms for One-to-One Pickup and Delivery Problems With Applications to Transportation Systems** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
  Treleaven, K., Pavone, M., Frazzoli, E.
  2013; 58 (9): 2261-2276

- **Spacecraft/Rover Hybrids for the Exploration of Small Solar System Bodies** *IEEE Aerospace Conference*
  Pavone, M., Castillo-Rogez, J. C., Nesnas, I. A., Hoffman, J. A., Strange, N. J.
  IEEE.2013

- **Decentralized decision-making on robotic networks with hybrid performance metrics** *51st Annual Allerton Conference on Communication, Control, and Computing*
  Rossi, F., Pavone, M.
  IEEE.2013: 358–365

- **Internally-Actuated Rovers for All-Access Surface Mobility: Theory and Experimentation** *IEEE International Conference on Robotics and Automation (ICRA)*
  Allen, R., Pavone, M., McQuin, C., Nesnas, I. A., Castillo-Rogez, J. C., Tam-Nguyen Nguyen, T. N., Hoffman, J. A.
  IEEE.2013: 5481–5488
- **Internally-Actuated Rovers for All-Access Surface Mobility: Theory and Experimentation**
  Allen, R., Pavone, M., McQuin, C., Nesnas, I., Castillo, J., Nguyen, T., N.
  2013
- **Guidance, Navigation, and Control Technology Assessment for Future Planetary Science Missions.** *Technical Report for Planetary Science Division, Science Mission Directorate, NASA*
  Quadrelli, M., McHenry, M., Wilcox, B., Hall, J., Volpe, R., Nesnas, I., Pavone, M.
  2013
- **Decentralized decision-making on robotic networks with hybrid performance metrics**
  Rossi, F., Pavone, M.
  2013
- **A Uniform-grid Discretization Algorithm for Stochastic Optimal Control with Risk Constraints**
  Chow, Y., L., Pavone, M.
  2013
- **Asymptotically Optimal Algorithms for Pickup and Delivery Problems with Application to Large-Scale Transportation Systems** *IEEE Transactions on Automatic Control*
  Treleaven, K., Pavone, M., Frazzoli, E.
  2013
- **Rebalancing the Rebalancers: Optimally Routing Vehicles and Drivers in Mobility-on-Demand Systems**
  Smith, S., L., Pavone, M., Schwager, M., Frazzol, E., Rus, D.
  2013
- **Stochastic Optimal Control With Dynamic, Time-Consistent Risk Constraints**
  Chow, Y., L., Pavone, M.
  2013
- **Stochastic Optimal Control With Dynamic, Time-Consistent Risk Constraints** *American Control Conference (ACC)*
  Chow, Y., Pavone, M.
  IEEE.2013: 390–395
- **Rebalancing the Rebalancers: Optimally Routing Vehicles and Drivers in Mobility-on-Demand Systems** *American Control Conference (ACC)*
  Smith, S. L., Pavone, M., Schwager, M., Frazzoli, E., Rus, D.
  IEEE.2013: 2362–2367
- **Robotic load balancing for mobility-on-demand systems** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Pavone, M., Smith, S. L., Frazzoli, E., Rus, D.
  2012; 31 (7): 839-854
- **Cost Bounds for Pickup and Delivery Problems with Application to Large-Scale Transportation Systems** *American Control Conference (ACC)*
  Treleaven, K., Pavone, M., Frazzoli, E.
  IEEE COMPUTER SOC.2012: 2120–2127
- **Models and Asymptotically Optimal Algorithms for Pickup and Delivery Problems on Roadmaps**
  Treleaven, K., Pavone, M., Frazzoli, E.
  2012
- **Observational Strategies for the Exploration of Small Solar System Bodies**
  Castillo, M., Pavone, M., Nesnas, I., Hoffman, J.
  2012
- **A Risk-Constrained Multi-Stage Decision Making Approach to the Architectural Analysis of Mars Missions**

Kuwata, Y., Pavone, M., Balaram, J.
2012

- **Spacecraft/Rover Hybrids for the Exploration of Small Solar System Bodies.** *Final Report for NASA NIAC 2011 Program.*
  Pavone, M., Castillo, J., Hoffman, J., Nesnas, I.
  2012

- **A Risk-Constrained Multi-Stage Decision Making Approach to the Architectural Analysis of Planetary Missions** *51st IEEE Annual Conference on Decision and Control (CDC)*
  Kuwata, Y., Pavone, M., Balaram, J. (.
  IEEE.2012: 2102–2109

- **Models and Efficient Algorithms for Pickup and Delivery Problems on Roadmaps** *51st IEEE Annual Conference on Decision and Control (CDC)*
  Treleaven, K., Pavone, M., Frazzoli, E.
  IEEE.2012: 5691–5698

- **Dynamic Vehicle Routing for Robotic Systems** *PROCEEDINGS OF THE IEEE*
  Bullo, F., Frazzoli, E., Pavone, M., Savla, K., Smith, S. L.
  2011; 99 (9): 1482-1504

- **Distributed Algorithms for Environment Partitioning in Mobile Robotic Networks** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
  Pavone, M., Arsie, A., Frazzoli, E., Bullo, F.
  2011; 56 (8): 1834-1848

- **Adaptive and Distributed Algorithms for Vehicle Routing in a Stochastic and Dynamic Environment** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
  Pavone, M., Frazzoli, E., Bullo, F.
  2011; 56 (6): 1259-1274

- **An Asymptotically Optimal Algorithm for Pickup and Delivery Problems** *50th IEEE Conference of Decision and Control (CDC)/European Control Conference (ECC)*
  Treleaven, K., Pavone, M., Frazzoli, E.
  IEEE.2011: 584–590

- **Load Balancing for Mobility-on-Demand Systems**
  Pavone, M., Smith, S., L., Frazzoli, E., Rus, D.
  2011

- **Distributed Control of Spacecraft Formations via Cyclic Pursuit: Theory and Experiments** *JOURNAL OF GUIDANCE CONTROL AND DYNAMICS*
  Ramirez-Riberos, J. L., Pavone, M., Frazzoli, E., Mille, D. W.
  2010; 33 (5): 1655-1669

- **DYNAMIC VEHICLE ROUTING WITH PRIORITY CLASSES OF STOCHASTIC DEMANDS** *SIAM JOURNAL ON CONTROL AND OPTIMIZATION*
  Smith, S. L., Pavone, M., Bullo, F., Frazzoli, E.
  2010; 48 (5): 3224-3245

- **Fundamental Performance Limits and Efficient Policies for Transportation-On-Demand Systems**
  Pavone, M., Treleaven, K., Frazzoli, E.
  2010

- **Dynamic Vehicle Routing with Stochastic Time Constraints** *IEEE International Conference on Robotics and Automation (ICRA)*
  Pavone, M., Frazzoli, E.
  IEEE.2010: 1460–1467

- **Fundamental Performance Limits and Efficient Polices for Transportation-On-Demand Systems** *49th IEEE Conference on Decision and Control (CDC)*
  Pavone, M., Treleaven, K., Frazzoli, E.
  IEEE.2010: 5622–5629

- **A Stochastic and Dynamic Vehicle Routing Problem with Time Windows and Customer Impatience** *1st International Conference on Robot Communication and Coordination (ROBOCOMM 2007)*
  Pavone, M., Bisnik, N., Frazzoli, E., Isler, V.
  SPRINGER.2009: 350–64

- **Sharing the Load Mobile Robotic Networks in Dynamic Environments** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Pavone, M., Savla, K., Frazzoli, E.
  2009; 16 (2): 52-61
- **Equitable Partitioning Policies for Robotic Networks** *IEEE International Conference on Robotics and Automation*
  Pavone, M., Arsie, A., Frazzoli, E., Bullo, F.
  IEEE.2009: 3979–3984
- **Sharing the load** *IEEE Robotics & Automation Magazine*
  Pavone, M., Savla, K., Frazzoli, E.
  2009; 16 (2): 52-61
- **Distributed Control of Spacecraft Formation via Cyclic Pursuit: Theory and Experiments** *American Control Conference 2009*
  Ramirez, J. L., Pavone, M., Frazzoli, E., Miller, D. W.
  IEEE.2009: 4811–4817
- **Dynamic Multi-Vehicle Routing with Multiple Classes of Demands** *American Control Conference 2009*
  Pavone, M., Smith, S. L., Bullo, F., Frazzoli, E.
  IEEE.2009: 604–609
- **Distributed Policies for Equitable Partitioning: Theory and Applications** *47th IEEE Conference on Decision and Control*
  Pavone, M., Frazzoli, E., Bullo, F.
  IEEE.2008: 4191–4197
- **Dynamic vehicle routing with heterogeneous demands**
  Smith, S., L., Pavone, M., Bullo, F., Frazzoli, E.
  2008
- **Decentralized policies for geometric pattern formation and path coverage** *JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME*
  Pavone, M., Frazzoli, E.
  2007; 129 (5): 633-643
- **Decentralized policies for geometric pattern formation** *26th American Control Conference*
  Pavone, M., Frazzoli, E.
  IEEE.2007: 5823–5828
- **Decentralized algorithms for stochastic and dynamic vehicle routing with general demand distribution**
  Pavone, M., Frazzoli, E., Bullo, F.
  2007
- **Decentralized Vehicle Routing in a Stochastic and Dynamic Environment with Customer Impatience**
  Pavone, M., N., B., Frazzoli, E., Isler, V.
  2007
- **Climbing Obstacle in Bio-robots via CNN and Adaptive Attitude Control** *International Journal of Circuit Theory and Applications*
  Pavone, M., Arena, P., Fortuna, L., Frasca, M., Patanè, L.
  2006; 34 (1): 109-125
- **An innovative mechanical and control architecture for a biomimetic hexapod for planetary exploration** *Space Technology*
  Pavone, M., Arena, P., Patanè, L.
  2006; 26 (1-2): 13-24
- **Realization of a CNN-Driven Cockroach-Inspired Robot**
  Arena, P., Fortuna, L., Frasca, M., Patanè, L.
  2006
- **Towards autonomous adaptive behavior in a bio-inspired CNN-controlled robot**
  Arena, P., Fortuna, L., Frasca, M., Patanè, L., Pavone, M.
  2006

- **An innovative mechanical and control architecture for a biomimetic hexapod for planetary exploration**
  Pavone, M., Arena, P., Patanè, L.
  2005

- **Climbing Obstacles via Bio-Inspired CNN-CPG and Adaptive Attitude Control**
  Arena, P., Fortuna, L., Frasca, M., Patanè, L., Pavone, M.
  2005