



## Marco Pavone

Associate Professor of Aeronautics and Astronautics, Senior Fellow at the Precourt Institute for Energy and Associate Professor, by courtesy, of Electrical Engineering & of Computer Science

### CONTACT INFORMATION

- **Administrator**

Renee Quiroz - Administrative Associate

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### Bio

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#### BIO

Dr. Marco Pavone is an Associate Professor of Aeronautics and Astronautics at Stanford University, where he directs the Autonomous Systems Laboratory and the Center for Automotive Research at Stanford. He is also a Distinguished Research Scientist at NVIDIA where he leads autonomous vehicle research. 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 a number of awards, including a Presidential Early Career Award for Scientists and Engineers from President Barack Obama, an Office of Naval Research Young Investigator Award, a National Science Foundation Early Career (CAREER) Award, a NASA Early Career Faculty Award, and an Early-Career Spotlight Award from the Robotics Science and Systems Foundation. 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 a number of venues, including the European Conference on Computer Vision, the IEEE International Conference on Robotics and Automation, the European Control Conference, the IEEE International Conference on Intelligent Transportation Systems, the Field and Service Robotics Conference, the Robotics: Science and Systems Conference, and the INFORMS Annual Meeting.

#### ACADEMIC APPOINTMENTS

- Associate Professor, Aeronautics and Astronautics
- Senior Fellow, Precourt Institute for Energy
- Associate Professor (By courtesy), Electrical Engineering
- Associate Professor (By courtesy), Computer Science
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- 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

- Center for Automotive Research at Stanford (CARS)

## PROFESSIONAL EDUCATION

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

## Teaching

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### COURSES

#### 2025-26

- Optimal and Learning-based Control: AA 203 (Spr)
- Principles of Robot Autonomy I: AA 174A, CS 137A, EE 160A (Aut)
- Robotics and Autonomous Systems Seminar: ENGR 319 (Aut, Win, Spr)

#### 2024-25

- Optimal and Learning-based Control: AA 203 (Spr)
- Principles of Robot Autonomy I: AA 174A, CS 137A (Aut)
- Principles of Robot Autonomy II: AA 174B, AA 274B, CS 237B, EE 260B, ME 274B (Win)
- Robotics and Autonomous Systems Seminar: ENGR 319 (Aut, Win, Spr)

#### 2023-24

- Optimal and Learning-based Control: AA 203 (Spr)
- Principles of Robot Autonomy I: AA 174A, CS 137A, EE 160A (Aut)
- Principles of Robot Autonomy II: AA 174B, AA 274B, CS 237B (Win)
- Robotics and Autonomous Systems Seminar: AA 289, CS 529 (Aut, Win, Spr)

#### 2022-23

- 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, Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Reader (AC)

Mahdi Al-Husseini, Nicholas Broadbent, Polo Contreras, Aaron Feldman, Alexandros Tzikas, Romeo Valentin

### Postdoctoral Faculty Sponsor

Carmen Amo Alonso, Jonas Frey, Daniele Gammelli, Wenhui Huang, Katie Luo, Jakob Thumm

### Orals Evaluator

Chris Agia

#### Doctoral Dissertation Advisor (AC)

Hugo Buurmeijer, Pranit Mohnot, Daniel Morton, Luis Pabon, Rohan Sinha

#### Doctoral Dissertation Co-Advisor (AC)

Chris Agia

#### Master's Program Advisor

Ellie Brosius, Kabir Cheema, Chenyang Dai, Billy Gao, Aviad Golan Peretz, Callista Holleschak, Pierre Labroche, Joseph Lee, David Lu, Bora Oztekin, Tanis Priddle, Julian Rodriguez Cardenas, Angela Sifuentes, Matthew Simpson, Avi Singh

#### Doctoral (Program)

Milan Ganai, Jacky Kwok, Xilun Zhang

## Publications

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### PUBLICATIONS

- **Safety Evaluation of Motion Plans Using Trajectory Predictors as Forward Reachable Set Estimators** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Chakraborty, K., Feng, Z., Veer, S., Sharma, A., Ding, W., Topan, S., Ivanovic, B., Pavone, M., Bansal, S.  
2026; 11 (3): 3262-3269
- **Convex Hulls of Reachable Sets** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*  
Lew, T., Bonalli, R., Pavone, M.  
2025; 70 (12): 8195-8209
- **Efficient Multi-Camera Tokenization With Triplanes for End-to-End Driving** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Ivanovic, B., Saltori, C., You, Y., Wang, Y., Luo, W., Pavone, M.  
2025; 10 (11): 11713-11720
- **Benchmarking the operation of quantum heuristics and Ising machines: scoring parameter setting strategies on optimization applications.** *Quantum machine intelligence*  
Bernal Neira, D. E., Brown, R., Sathe, P., Wudarski, F., Pavone, M., Rieffel, E., Venturelli, D.  
2025; 7 (2): 86
- **Centralized and Decentralized Implicit Differentiation** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*  
Valenzuela, L., Brown, R., Pavone, M.  
2025; 12 (3): 1957-1967
- **It's All in the Mix: Technology choice between driverless and human-driven vehicles in sharing systems** *EUROPEAN JOURNAL OF OPERATIONAL RESEARCH*  
Martin, L., Minner, S., Pavone, M., Schiffer, M.  
2025; 324 (3): 969-980
- **Matching with transfers under distributional constraints** *GAMES AND ECONOMIC BEHAVIOR*  
Jalota, D., Ostrovsky, M., Pavone, M.  
2025; 152: 313-332
- **Optimal coordination of electric buses and battery storage for achieving a 24/7 carbon-free electrified fleet** *Applied Energy*  
Luke, J., Ribeiro, M., Martin, S., Balogun, E., Cezar, G. V., Pavone, M., Rajagopal, R.  
2025; 377
- **Pseudo-Simulation for Autonomous Driving**  
Cao, W., Hallgarten, M., Li, T., Dauner, D., Gu, X., Wang, C., Miron, Y., Aiello, M., Li, H., Gilitschenski, I., Ivanovic, B., Pavone, M., Geiger, et al  
edited by Lim, J., Song, S., Park, H. W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 4709-4722

- **Real-Time Out-of-Distribution Failure Prevention via Multi-Modal Reasoning**  
Ganai, M., Sinha, R., Agia, C., Morton, D., Di Lillo, L., Pavone, M.  
edited by Lim, J., Song, S., Park, H. W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 283-308
- **Sim2Val: Leveraging Correlation Across Test Platforms for Variance-Reduced Metric Estimation**  
Luo, R., Yang, H., Watson, M., Sharma, A., Veer, S., Schmerling, E., Pavone, M.  
edited by Lim, J., Song, S., Park, H. W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 2294-2310
- **Towards Robust Spacecraft Trajectory Optimization via Transformers**  
Takubo, Y., Guffanti, T., Gammelli, D., Pavone, M., D'Amico, S., IEEE  
IEEE.2025
- **Space-LLaVA: a Vision-Language Model Adapted to Extraterrestrial Applications**  
Foutter, M., Gammelli, D., Kruger, J., Foss, E., Bhoj, P., Guffanti, T., D'Amico, S., Pavone, M., IEEE  
IEEE.2025
- **Controls for Space: a perspective to 2030s and beyond II**  
Mammarella, M., D'Amico, S., Pavone, M., Linares, R., Acheson, M. J., Ankersen, F., Sasaki, T., Ancona, E., DiMatteo, J., Spiegel, I. A., Azza, F., Varile, M., IEEE  
IEEE.2025: 3047-3056
- **Controls for Space: a perspective to 2030s and beyond I**  
Mammarella, M., D'Amico, S., Pavone, M., Linares, R., Acheson, M. J., Ankersen, F., Sasaki, T., Ancona, E., DiMatteo, J., Spiegel, I. A., Azza, F., Varile, M., IEEE  
IEEE.2025: 2286-2296
- **Generalizable Spacecraft Trajectory Generation via Multimodal Learning with Transformers**  
Celestini, D., Afsharrad, A., Gammelli, D., Guffanti, T., Zardini, G., Lall, S., Capello, E., D'Amico, S., Pavone, M., IEEE  
IEEE.2025: 3558-3565
- **LoRD: Adapting Differentiable Driving Policies to Distribution Shifts**  
Diehl, C., Karkus, P., Veer, S., Pavone, M., Bertram, T.  
edited by Ott, C.  
IEEE.2025: 7036-7043
- **Closed-Loop Supervised Fine-Tuning of Tokenized Traffic Models**  
Zhang, Z., Karkus, P., Igl, M., Ding, W., Chen, Y., Ivanovic, B., Pavone, M., IEEE COMPUTER SOC  
IEEE COMPUTER SOC.2025: 5422-5432
- **LLaMA-Berry: Pairwise Optimization for Olympiad-level Mathematical Reasoning via O1-like Monte Carlo Tree Search**  
Zhang, D., Wu, J., Lei, J., Che, T., Li, J., Xie, T., Huang, X., Zhang, S., Pavone, M., Li, Y., Ouyang, W., Zhou, D., Ritter, et al  
edited by Chiruzzo, L., Wang, L.  
ASSOC COMPUTATIONAL LINGUISTICS-ACL.2025: 7315-7337
- **System-Level Safety Monitoring and Recovery for Perception Failures in Autonomous Vehicles**  
Chakraborty, K., Feng, Z., Veer, S., Sharma, A., Ivanovic, B., Pavone, M., Bansal, S.  
edited by Ott, C.  
IEEE.2025: 12885-12891
- **Online Aggregation of Trajectory Predictors**  
Tong, A., Sharma, A., Veer, S., Pavone, M., Yang, H.  
edited by Ott, C.  
IEEE.2025: 3437-3444
- **Realistic Extreme Behavior Generation for Improved AV Testing**  
Dyro, R., Foutter, M., Li, R., Di Lillo, L., Schmerling, E., Zhou, X., Pavone, M.  
edited by Ott, C.

IEEE.2025: 1354-1362

- **Gen-Drive: Enhancing Diffusion Generative Driving Policies with Reward Modeling and Reinforcement Learning Fine-tuning**  
Huang, Z., Weng, X., Igl, M., Chen, Y., Cao, Y., Ivanovic, B., Pavone, M., Lv, C.  
edited by Ott, C.  
IEEE.2025: 3445-3451
- **Categorical Traffic Transformer: Interpretable and Diverse Behavior Prediction with Tokenized Latent**  
Chen, Y., Tonkens, S., Pavone, M.  
edited by Ott, C.  
IEEE.2025: 2423-2430
- **LOTUS: A Leaderboard for Detailed Image Captioning from Quality to Societal Bias and User Preferences**  
Hirota, Y., Li, B., Hachiuma, R., Wu, Y., Ivanovic, B., Nakashima, Y., Pavone, M., Choi, Y., Wang, Y., Yang, H.  
edited by Rehm, G., Li, Y.  
ASSOC COMPUTATIONAL LINGUISTICS-ACL.2025: 295-309
- **To Spend or to Gain: Online Learning in Repeated Karma Auctions**  
Berriaud, D., Elokda, E., Jalota, D., Frazzoli, E., Pavone, M., Dorfler, F., ACM  
ASSOC COMPUTING MACHINERY.2025: 289-297
- **Accelerating Online Mapping and Behavior Prediction via Direct BEV Feature Attention**  
Gu, X., Song, G., Gilitschenski, I., Pavone, M., Ivanovic, B.  
edited by Leonardis, A., Ricci, E., Roth, S., Russakovsky, O., Sattler, T., Varol, G.  
SPRINGER INTERNATIONAL PUBLISHING AG.2025: 412-428
- **Dolphins: Multimodal Language Model for Driving**  
Ma, Y., Cao, Y., Sun, J., Pavone, M., Xiao, C.  
edited by Leonardis, A., Ricci, E., Roth, S., Russakovsky, O., Sattler, T., Varol, G.  
SPRINGER INTERNATIONAL PUBLISHING AG.2025: 403-420
- **RealGen: Retrieval Augmented Generation for Controllable Traffic Scenarios**  
Ding, W., Cao, Y., Zhao, D., Xiao, C., Pavone, M.  
edited by Leonardis, A., Ricci, E., Roth, S., Russakovsky, O., Sattler, T., Varol, G.  
SPRINGER INTERNATIONAL PUBLISHING AG.2025: 93-110
- **Transformer-Based Model Predictive Control: Trajectory Optimization via Sequence Modeling** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Celestini, D., Gammelli, D., Guffanti, T., D'Amico, S., Capello, E., Pavone, M.  
2024; 9 (11): 9820-9827
- **Gradient Descent-Based Task-Oriented Robot Control Enhanced With Gaussian Process Predictions** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Roveda, L., Pavone, M.  
2024; 9 (9): 8035-8042
- **On the Interplay Between Self-Driving Cars and Public Transportation** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*  
Lanzetti, N., Schiffer, M., Ostrovsky, M., Pavone, M.  
2024; 11 (3): 1478-1490
- **Estimating the Convex Hull of the Image of a Set with Smooth Boundary: Error Bounds and Applications** *DISCRETE & COMPUTATIONAL GEOMETRY*  
Lew, T., Bonalli, R., Janson, L., Pavone, M.  
2024
- **When Efficiency Meets Equity in Congestion Pricing and Revenue Refunding Schemes** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*  
Jalota, D., Solovey, K., Gopalakrishnan, K., Zoepf, S., Balakrishnan, H., Pavone, M.  
2024; 11 (2): 1127-1138

- **Locomotion as manipulation with ReachBot.** *Science robotics*  
Chen, T. G., Newdick, S., Di, J., Bosio, C., Ongole, N., Lapôtre, M., Pavone, M., Cutkosky, M. R.  
2024; 9 (89): eadi9762
- **Bayesian Embeddings for Few-Shot Open World Recognition.** *IEEE transactions on pattern analysis and machine intelligence*  
Willes, J., Harrison, J., Harakeh, A., Finn, C., Pavone, M., Waslander, S. L.  
2024; 46 (3): 1513-1529
- **Interactive Joint Planning for Autonomous Vehicles** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Chen, Y., Veer, S., Karkus, P., Pavone, M.  
2024; 9 (2): 987-994
- **Risk-Averse Trajectory Optimization via Sample Average Approximation** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Lew, T., Bonalli, R., Pavone, M.  
2024; 9 (2): 1500-1507
- **A COPOSITIVE FRAMEWORK FOR ANALYSIS OF HYBRID ISING-CLASSICAL ALGORITHMS** *SIAM JOURNAL ON OPTIMIZATION*  
Brown, R., Neira, D., Venturelli, D., Pavone, M.  
2024; 34 (2): 1455-1489
- **Real-time Control of Electric Autonomous Mobility-on-Demand Systems via Graph Reinforcement Learning**  
Singh, A., Gammelli, D., Luke, J., Gopalakrishnan, K., Helmreich, D., Pavone, M., IEEE  
IEEE.2024: 1407-1414
- **Fast Grid Emissions Sensitivities using Parallel Decentralized Implicit Differentiation**  
Degleris, A., Valenzuela, L., Rajagopal, R., Pavone, M., El Gamal, A., IEEE  
IEEE.2024: 458-464
- **Dynamic Locational Marginal Emissions Via Implicit Differentiation**  
Valenzuela, L., Degleris, A., El Gamal, A., Pavone, M., Rajagopal, R., IEEE  
IEEE.2024
- **Perfecting Periodic Trajectory Tracking: Model Predictive Control with a Periodic Observer ( $\Pi$ -MPC)**  
Pabon, L., Kohler, J., Alora, J., Eberhard, P., Carron, A., Zeilinger, M. N., Pavone, M., IEEE  
IEEE.2024: 12840-12847
- **Task-Driven Manipulation with Reconfigurable Parallel Robots**  
Morton, D., Cutkosky, M., Pavone, M., IEEE  
IEEE.2024: 9924-9930
- **Tokenize the World into Object-level Knowledge to Address Long-tail Events in Autonomous Driving**  
Tian, R., Li, B., Weng, X., Chen, Y., Schmerling, E., Wang, Y., Ivanovic, B., Pavone, M.  
edited by Kroemer, O., Agrawal, P., Burgard, W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2024
- **Unpacking Failure Modes of Generative Policies: Runtime Monitoring of Consistency and Progress**  
Agia, C., Sinha, R., Yang, J., Cao, Z., Antonova, R., Pavone, M., Bohg, J.  
edited by Kroemer, O., Agrawal, P., Burgard, W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2024
- **Text2Interaction: Establishing Safe and Preferable Human-Robot Interaction**  
Thumm, J., Agia, C., Pavone, M., Althoff, M.  
edited by Kroemer, O., Agrawal, P., Burgard, W.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2024
- **Credit vs. Discount-Based Congestion Pricing: A Comparison Study**  
Chiu, C., Jalota, D., Pavone, M., IEEE  
IEEE.2024: 2331-2336

- **Learning for CasADi Data-driven Models in Numerical Optimization**  
Salzmann, T., Arrizabalaga, J., Andersson, J., Pavone, M., Ryll, M.  
edited by Abate, A., Cannon, M., Margellos, K., Papachristodoulou, A.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2024: 541-552
- **DTPP: Differentiable Joint Conditional Prediction and Cost Evaluation for Tree Policy Planning in Autonomous Driving**  
Huang, Z., Karkus, P., Ivanovic, B., Chen, Y., Pavone, M., Lv, C., IEEE  
IEEE.2024: 6806-6812
- **Augmenting Lane Perception and Topology Understanding with Standard Definition Navigation Maps**  
Luo, K. Z., Weng, X., Wang, Y., Wu, S., Li, J., Weinberger, K. Q., Wang, Y., Pavone, M., IEEE  
IEEE.2024: 4029-4035
- **Mapping High-level Semantic Regions in Indoor Environments without Object Recognition**  
Bigazzi, R., Baraldi, L., Kousik, S., Cucchiari, R., Pavone, M., IEEE  
IEEE.2024: 7686-7693
- **Driving Everywhere with Large Language Model Policy Adaptation**  
Li, B., Wang, Y., Mao, J., Ivanovic, B., Veer, S., Leung, K., Pavone, M., IEEE  
IEEE COMPUTER SOC.2024: 14948+
- **Producing and Leveraging Online Map Uncertainty in Trajectory Prediction**  
Gu, X., Song, G., Gilitschenski, I., Pavone, M., Ivanovic, B., IEEE  
IEEE COMPUTER SOC.2024: 14521-14530
- **PARA-Drive: Parallelized Architecture for Real-time Autonomous Driving**  
Weng, X., Ivanovic, B., Wang, Y., Wang, Y., Pavone, M., IEEE  
IEEE COMPUTER SOC.2024: 15449-15458
- **Reinforcement Learning with Human Feedback for Realistic Traffic Simulation**  
Cao, Y., Ivanovic, B., Xiao, C., Pavone, M., IEEE  
IEEE.2024: 14428-14434
- **ZAPP! Zonotope Agreement of Prediction and Planning for Continuous-Time Collision Avoidance with Discrete-Time Dynamics**  
Paparusso, L., Kousik, S., Schmerling, E., Braghin, F., Pavone, M., IEEE  
IEEE.2024: 9285-9292
- **Online Distribution Shift Detection via Recency Prediction**  
Luo, R., Sinha, R., Sun, Y., Hindy, A., Zhao, S., Savarese, S., Schmerling, E., Pavone, M., IEEE  
IEEE.2024: 16251-16263
- **Accelerating Continuous Variable Coherent Ising Machines via Momentum**  
Brown, R. A., Venturelli, D., Pavone, M., Neira, D.  
edited by Dilkina, B.  
SPRINGER INTERNATIONAL PUBLISHING AG.2024: 109-126
- **SAMPLE AVERAGE APPROXIMATION FOR STOCHASTIC PROGRAMMING WITH EQUALITY CONSTRAINTS** *SIAM JOURNAL ON OPTIMIZATION*  
Lew, T., Bonalli, R., Pavone, M.  
2024; 34 (4): 3506-3533
- **Transformers for Trajectory Optimization with Application to Spacecraft Rendezvous**  
Guffanti, T., Gammelli, D., D'Amico, S., Pavone, M., IEEE  
IEEE.2024
- **Modeling Considerations for Developing Deep Space Autonomous Spacecraft and Simulators**  
Agia, C., Vila, G., Bandyopadhyay, S., Bayard, D. S., Cheung, K., Lee, C. H., Wood, E., Aenishanslin, I., Ardito, S., Fesq, L., Pavone, M., Nesnas, I. A. D., IEEE  
IEEE.2024

- **Contingency Planning Using Bi-level Markov Decision Processes for Space Missions**  
Banerjee, S., Balaban, E., Shirley, M., Bradner, K., Pavone, M., IEEE  
IEEE.2024
- **Martian Exploration of Lava Tubes (MELT) with ReachBot: Scientific Investigation and Concept of Operations**  
Dil, J., Cuevas-Quinones, S., Newdick, S., Chen, T. G., Pavone, M., Lapotre, M. G. A., Cutkosky, M., IEEE  
IEEE.2024: 36-41
- **Partial-View Object View Synthesis via Filtering Inversion**  
Sun, F., Tremblay, J., Blukis, V., Lin, K., Xu, D., Ivanovic, B., Karkus, P., Birchfield, S., Fox, D., Zhang, R., Li, Y., Wu, J., Pavone, et al  
IEEE COMPUTER SOC.2024: 453-463
- **Dynamic Locational Marginal Emissions via Implicit Differentiation** *IEEE TRANSACTIONS ON POWER SYSTEMS*  
Valenzuela, L., Degleris, A., El Gamal, A., Pavone, M., Rajagopal, R.  
2024; 39 (1): 1138-1147
- **Sample-efficient safety assurances using conformal prediction** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*  
Luo, R., Zhao, S., Kuck, J., Ivanovic, B., Savarese, S., Schmerling, E., Pavone, M.  
2023
- **Text2Motion: from natural language instructions to feasible plans** *AUTONOMOUS ROBOTS*  
Lin, K., Agia, C., Migimatsu, T., Pavone, M., Bohg, J.  
2023; 47 (8): 1345-1365
- **The matroid team surviving orienteers problem and its variants: Constrained routing of heterogeneous teams with risky traversal** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*  
Jorgensen, S., Pavone, M.  
2023
- **Semantic anomaly detection with large language models** *AUTONOMOUS ROBOTS*  
Elhafsi, A., Sinha, R., Agia, C., Schmerling, E., Nesnas, I. A. D., Pavone, M.  
2023
- **Balancing fairness and efficiency in traffic routing via interpolated traffic assignment** *AUTONOMOUS AGENTS AND MULTI-AGENT SYSTEMS*  
Jalota, D., Solovey, K., Tsao, M., Zoepf, S., Pavone, M.  
2023; 37 (2)
- **Near-Optimal Multi-Robot Motion Planning with Finite Sampling** *IEEE TRANSACTIONS ON ROBOTICS*  
Dayan, D., Solovey, K., Pavone, M., Halperin, D.  
2023; 39 (5): 3422-3436
- **Analysis of Theoretical and Numerical Properties of Sequential Convex Programming for Continuous-Time Optimal Control** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*  
Bonalli, R., Lew, T., Pavone, M.  
2023; 68 (8): 4570-4585
- **Robust feedback motion planning via contraction theory** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*  
Singh, S., Landry, B., Majumdar, A., Slotine, J., Pavone, M.  
2023; 42 (9): 655-688
- **Fisher markets with linear constraints: Equilibrium properties and efficient distributed algorithms** *GAMES AND ECONOMIC BEHAVIOR*  
Jalota, D., Pavone, M., Qi, Q., Ye, Y.  
2023; 141: 223-260
- **Control-oriented meta-learning** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*  
Richards, S. M., Azizan, N., Slotine, J., Pavone, M.  
2023
- **Trustworthy AI-Part II** *COMPUTER*

- 
- Mariani, R., Rossi, F., Cucchiara, R., Pavone, M., Simkin, B., Koene, A., Papenbrock, J.  
2023; 56 (5): 13-16
- **Real-Time Neural MPC: Deep Learning Model Predictive Control for Quadrotors and Agile Robotic Platforms** *IEEE ROBOTICS AND AUTOMATION LETTERS*  
Salzmann, T., Kaufmann, E., Arrizabalaga, J., Pavone, M., Scaramuzza, D., Ryll, M.  
2023; 8 (4): 2397-2404
  - **Co-design of communication and machine inference for cloud robotics** *AUTONOMOUS ROBOTS*  
Nakanoya, M., Narasimhan, S., Bhat, S., Anemogiannis, A., Datta, A., Katti, S., Chinchali, S., Pavone, M.  
2023
  - **Co-Design to Enable User-Friendly Tools to Assess the Impact of Future Mobility Solutions** *IEEE TRANSACTIONS ON NETWORK SCIENCE AND ENGINEERING*  
Zardini, G., Lanzetti, N., Censi, A., Frazzoli, E., Pavone, M.  
2023; 10 (2): 827-844
  - **Online Routing Over Parallel Networks: Deterministic Limits and Data-driven Enhancements** *INFORMS JOURNAL ON COMPUTING*  
Jalota, D., Paccagnan, D., Schiffer, M., Pavone, M.  
2023
  - **Trustworthy AI-Part 1** *COMPUTER*  
Mariani, R., Rossi, F., Cucchiara, R., Pavone, M., Simkin, B., Koene, A., Papenbrock, J.  
2023; 56 (2): 14-18
  - **Data-Driven Spectral Submanifold Reduction for Nonlinear Optimal Control of High-Dimensional Robots**  
Alora, J., Cenedese, M., Schmerling, E., Haller, G., Pavone, M., IEEE  
IEEE.2023: 2627-2633
  - **trajdata: A Unified Interface to Multiple Human Trajectory Datasets**  
Ivanovic, B., Song, G., Gilitschenski, I., Pavone, M.  
edited by Oh, A., Neumann, T., Globerson, A., Saenko, K., Hardt, M., Levine, S.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2023
  - **Hybrid Multi-agent Deep Reinforcement Learning for Autonomous Mobility on Demand Systems**  
Enders, T., Harrison, J., Pavone, M., Schiffer, M.  
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