

Ramón Darío Iglesias

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Education

Stanford University

01/2016-Present

Ph.D. in Civil Engineering (expected 2019)

Autonomous Systems Laboratory (ASL) - Advisor: Marco Pavone

Focus: Optimal Control of Autonomous Fleets.

Stanford University

09/2012-06/2014

M.S. in Civil Engineering

Focus: Data Analysis and Optimization.

The University of Texas at Austin

08/2007-06/2012

B.S. in Civil Engineering

Recent Experience

Lyft Inc., San Francisco, CA

6/2018-9/2018

Research Science Intern

Developed prepositioning algorithms for autonomous fleets.

- Developed a stochastic prepositioning algorithm that leverages short-term demand forecasts to optimize self-driving fleet operations.
- Tested the algorithm in simulation to compare against human behavior.
- Deployed the prepositioning algorithm to a self-driving pilot in Las Vegas.

Stanford University, Stanford, CA

1/2016-Present

Researcher

Devising methods to model and control large fleets of autonomous vehicles (Autonomous Mobility-on-Demand, or AMoD).

- Developed a queueing-theoretical framework to characterize AMoD systems [6, 4].
- Leveraged network flow theory to model and optimize the interaction between fleets of autonomous electric vehicles and the power grid [3, 2].
- Trained deep learning models to predict short-term travel demand and devised a stochastic model predictive controller that leverages the forecasted demand to operate in real-time large fleets of autonomous vehicles [5, 1].
- Collaborated with Toyota to implement vehicle relocation algorithms in their carsharing system, Ha:mo, in Japan.

SunPower, Richmond, CA

01/2015-01/2016

Financial Software Engineer

Architected and developed software for the Financial Products team.

- Built a new pricing engine, reducing the cost by 80% and the response time by 90%.
- Developed an internal data processing web application to run and visualize complex financial analyses.
- Architected and implemented the DevOps pipeline for the Financial Products team.

Stanford University, Stanford, CA

10/2013-12/2014

Researcher

Developed methods to model contractor operational costs into wind farm layout design, and devised algorithms to optimize wind farm building schedules.

- Built predictive model to forecast the expected number of days lost due to high winds by month and the best hours of the day to work each month using Markov models trained on past hourly wind data.
- Optimized crane path schedules for wind farm erection.
- Optimized wind farm layout while considering erection costs and life-time revenue.
- Built a web application that contractors can use to leverage the aforementioned methods.

Skills and Interests

Software:	Python (Numpy, Pandas, Tensorflow, PyTorch, Flask), Javascript (AngularJS, D3, Leaflet), R, MATLAB; AWS, Spark, Git, Docker, CircleCI, PostgreSQL, L ^A T _E X
Coursework:	Machine Learning, Data Mining, Decision Making under Uncertainty, Optimization, Deep Learning, Data Visualization, Optimal Control, State Estimation, Web Development
Sports:	Show Jumping, Soccer, Racquetball
Languages:	Spanish (native), English (fluent), German (intermediate)

Publications

- [1] M. Tsao, R. Iglesias, and M. Pavone. Stochastic model predictive control for Autonomous Mobility on Demand. In *Proc. IEEE Int. Conf. on Intelligent Transportation Systems*, 2018. In Press.
- [2] F. Rossi, R. Iglesias, M. Alizadeh, and M. Pavone. On the interaction between Autonomous Mobility-on-Demand systems and the power network: Models and coordination algorithms. *IEEE Transactions on Control of Network Systems*, 2018. Submitted.
- [3] F. Rossi, R. Iglesias, M. Alizadeh, and M. Pavone. On the interaction between Autonomous Mobility-on-Demand systems and the power network: Models and coordination algorithms. In *Robotics: Science and Systems*, 2018.
- [4] R. Iglesias, F. Rossi, R. Zhang, and M. Pavone. A BCMP network approach to modeling and controlling autonomous mobility-on-demand systems. *Int. Journal of Robotics Research*, 2018.
- [5] R. Iglesias, F. Rossi, K. Wang, D. Hallac, J. Leskovec, and M. Pavone. Data-driven model predictive control of Autonomous Mobility-on-Demand Systems. In *Proc. IEEE Conf. on Robotics and Automation*, 2018.
- [6] R. Iglesias, F. Rossi, R. Zhang, and M. Pavone. A BCMP network approach to modeling and controlling Autonomous Mobility-on-Demand systems. In *Workshop on Algorithmic Foundations of Robotics*, 2016.