

Patrick Emami

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Education

[†] Indicates expected

2016–2021 [†]	University of Florida , Gainesville, FL Ph.D., Computer Science	Advisor: Dr. Sanjay Ranka
2012–2016	University of Florida , Gainesville, FL B.Sc., Computer Engineering	Cum Laude, GPA: 3.74/4.0

Research and Industry Experience

2016–present	MALT Lab , Research Assistant Deep generative models for multi-object spatiotemporal data
2016–present	UF Transportation Institute (UFTI) , Research Assistant Algorithm development and field deployment of real-time multi-sensor fusion for traffic intersection optimization
2015–2016	Machine Intelligence Lab (MIL) , Undergraduate Research Assistant Motion planning for Subjugator, an AUV with 6 DOF
Summer 2015	Amazon.com, Inc. , Software Development Engineering Intern Developed an Android image processing library for scanning PDF417 barcodes during driver registration in the Prime Now app
2013–2015	Center for Intelligent Machines and Robotics (CIMAR) Undergraduate Research Assistant Developed a Python framework for implementing Partially Observable Markov Decision Processes

Selected Honors and Awards

2016–present	McKnight Doctoral Fellowship (\$65,000)
2016–present	CISE Department Graduate Research Fellowship (\$150,000)
2016	President's Honor Roll
2015–2016	Northrop Grumman Engineering Scholarship (\$1,000)
2014–2015	University Scholars Program Research Grant (\$1,750)
2014	IROS'14 Best Entertainment Robots and Systems Paper Finalist

Summer Schools

Summer 2019	Machine Learning Summer School (MLSS) London
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Teaching

Summer 2018 **UF Student Science Training Program**
Intro to Machine Learning — Curriculum Design and Course Instructor

Mentoring

Fall 2018–present	Kevin Chow (B.Sc.)	University of Florida
Fall-Summer 2018	Anuran Rouchowdhury (M.Sc)	University of Florida
Summer 2018	Ian Pelakh (B.Sc.)	University of Florida
Fall 2017	Shalaka Naik (M.Sc), Individual Study	University of Florida
Fall 2017	Vivek Gade (M.Sc), Individual Study	University of Florida
Summer 2017	Jabari Wilson (B.Sc.), Summer Undergraduate Research Fellow	University of Alabama

Volunteering

2017–2018	UF Teaching Youth Programming Essentials , Curriculum Lead Responsible for designing and improving the UF TYPE programming curriculum
2016–2017	UF Teaching Youth Programming Essentials , Instructor Teach an after school Intro to Programming course at local high schools
2014–2015	UF Association of Computer Engineers , Co-Founder and Project Manager Organized and presented at technical and professional development workshops for undergraduate computer engineering students

Professional Activities

2020	Optimization Letters , Reviewer
2019	UF Informatics Institute Student Data Analysis Seminar , Co-Organizer
2018	UF Informatics Institute Student Data Analysis Seminar , Co-Organizer
2018	International Conference on Machine Learning and Data Science , Reviewer
2018	IEEE Intelligent Transportation Systems Conference , Special Session Chair
2018	IEEE Intelligent Transportation Systems Conference , Reviewer
2017	International Conference on Machine Learning and Data Science , Reviewer
2017	UF Informatics Institute Student Data Analysis Seminar , Co-Organizer
2016–2018	UF Machine Learning Reading Group , Organizer

Professional Societies

2018–present	Alpha Epsilon Lambda Graduate Honor Society, member
2017–present	ACM, student member
2016–present	IEEE, student member
2014–present	IEEE Eta Kappa Knu Honor Society, member

Publications

Peer-Reviewed Journals

- [1] **Emami, P.**, & Panos M. P., & Elefteriadou, L., & Ranka, S. Forthcoming. Machine Learning Methods for Data Association in Multi-Object Tracking. *ACM Computing Surveys*. 2020.
- [2] Pourmehrab, M., **Emami, P.**, Martin-Gasulla, Marilo, Wilson, Jabari, Elefteriadou, L., Ranka, Sanjay. Forthcoming. Signalized Intersection Performance with Automated and Conventional Vehicles: A Comparative Study. *Journal of Transportation Engineering, Part A: Systems*. 2020.

Peer-Reviewed Conferences

- [1] **Emami, P.**, Pourmehrab, M., Martin-Gasulla, M., Ranka, S., Elefteriadou, L. A Comparison of Intelligent Signalized Intersection Controllers Under Mixed Traffic. *IEEE Intelligent Transportation Systems Conference*, 2018.
- [2] Omidvar, A., Pourmehrab, M., **Emami, P.**, Kiriazes, R., Esposito, J., Letter, C., Elefteriadou, L., Ranka, S., Crane, C. Deployment and Testing of Optimized Autonomous and Connected Vehicle Trajectories at a Closed-Course Signalized Intersection. *Transportation Research Board's 97th*, 2018.
- [3] **Emami, P.**, Elefteriadou, L., Ranka, S. Tracking Vehicles Equipped with Dedicated Short-Range Communication at Traffic Intersections. *7th ACM International Symposium on Design and Analysis of Intelligent Vehicular Networks and Applications (DIVANet'17)*, 2017.
- [4] Hamlet, A., **Emami, P.**, Crane, C. The Cognitive Driving Framework: Joint Inference for Collision Prediction and Avoidance in Autonomous Vehicles. In the *15th International Conference on Control, Automation and Systems (ICCAS)*, pp. 1714-1719. IEEE, 2015.
- [5] Hamlet, A., **Emami, P.**, Crane, C. A Gesture Recognition System for Mobile Robots That Learns Online. In the *2014 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'14)*, pp. 2114-2119. IEEE, 2014.

Preprints

- [1] Vargas, L.*, **Emami, P.***, Traynor, P. On the Detection of Disinformation Campaign Activity with Network Analysis. *arXiv:2005.13466 [cs.SI]*, 2020.
- [2] **Emami, P.**, & Ranka, S. Learning Permutations with Sinkhorn Policy Gradient. *arXiv:1805.07010 [cs.LG]*, 2018.
- [3] **Emami, P.**, & Panos M. P., & Elefteriadou, L., & Ranka, S. Machine Learning Methods for Solving Assignment Problems in Multi-Target Tracking. Under review at *ACM Computing Surveys*. *arXiv:1802.06897 [cs.CV]*, 2018.

Posters

- [1] **Emami, P.**, & Pourmehrab, M., & Elefteriadou, L., & Ranka, S., & Crane, C. A Demonstration of Fusing DSRC and Radar for Optimizing Intersection Performance. *Automated Vehicles Symposium (AVS'17)*, 2017.

Blog Posts

- [1] **Emami, P.** Deep Deterministic Policy Gradients in Tensorflow. <http://pemami4911.github.io/blog/2016/08/21/ddpg-rl.html>. 2016. > 100K unique views (Google Analytics).