

# PANAGIOTIS KYRIAKIS

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## EDUCATION

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### University of Southern California

August 2017 - Present

PhD in Electrical Engineering

Advisor: Prof. Paul Bogdan

Areas: *Reinforcement Learning, Deep Learning, Control Theory, Formal Methods*

### ETH Zurich

August 2015 - July 2017

MSc in Information Technology and Electrical Engineering

Advisor: Prof. Florian Dörfler

Areas: *Control Theory, Approximation Algorithms*

Master Thesis: *Metric Approximations and Clustering*

### National Technical University of Athens

August 2010 - July 2015

Diploma in Electrical and Computer Engineering

Advisor: Prof. Costas Tzafestas

Areas: *Control Theory, Robotics*

Diploma Thesis: *Path Tracking for UAVs Using Feedback Equivalence*

## RESEARCH HIGHLIGHTS

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### University of Southern California

August 2017 - Present

*Research Assistant*

*Advisor: Prof. Paul Bogdan*

- Currently working on developing hyperbolic filtrations of simplicial complexes. Paper in preparation for [International Conference on Machine Learning](#)
- Developed a novel single-policy algorithm multi-objective reinforcement learning. Submitted to [International Conference on Learning Representations](#).
- Developed a novel algorithm for the problem of learning from demonstrations given by an expert under safety specifications expressed as stochastic temporal logic constraints. Submitted to [American Control Conference](#).
- Worked on topological data analysis and manifold representation learning for computer vision applications. Paper appeared in [International Conference on Learning Representations](#).
- Defined the stability and fairness of submodular allocations among competitive agents. Paper to appear in [Conference on Decision and Control](#).
- Proposed a greedy algorithm for learning optimal sensor placements in networked systems. Paper appeared in [American Control Conference](#).
- Developed Stochastic Temporal Logic for expressing safety specifications for self-driving cars. Results published in [ACM Transactions on Embedded Computing Systems](#) and [FORMATS](#).
- Awarded \$10000 Google Research Credits for the Google Cloud Platform to support my research.

### University of Southern California

January 2019 - December 2019

*Teaching Assistant*

- Assisting in course teaching of undergraduate (CSCI 201 - Principles of Software Development) and graduate (EE 511 - Simulation Methods For Stochastic Systems) level courses. Responsible for holding office hours, overseeing Course Producers during lab sessions, designing and grading student projects.

## PUBLICATIONS

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1. **P. Kyriakis** and P. Bogdan, “Hyperbolic filtration learning,” in *International Conference on Machine Learning*, 2022. To be submitted
2. **P. Kyriakis**, J. V. Deshmukh, and P. Bogdan, “Pareto policy adaptation,” in *International Conference on Learning Representations*, 2021. Under Review
3. **P. Kyriakis**, J. V. Deshmukh, and P. Bogdan, “Inverse reinforcement learning under stochastic temporal logic specifications,” in *American Control Conference*, 2021. Under Review
4. **P. Kyriakis**, I. Fostiropoulos, and P. Bogdan, “Learning hyperbolic representations of topological features,” in *International Conference on Learning Representations*, 2021
5. **P. Kyriakis**, S. Pequito, and P. Bogdan, “On the effects of memory and topology on the controllability of complex dynamical networks,” *Scientific Reports*, vol. 10, p. 17346, Oct 2020
6. **P. Kyriakis**, S. Pequito, and P. Bogdan, “On the stability and fairness of submodular allocations,” in *Conference on Decision and Control*, 2020
7. **P. Kyriakis**, S. Pequito, and P. Bogdan, “Actuator placement for heterogeneous complex dynamical networks with long-term memory,” in *2020 American Control Conference (ACC)*, pp. 4671–4676, 2020
8. **P. Kyriakis**, J. V. Deshmukh, and P. Bogdan, “Specification mining and robust design under uncertainty: A stochastic temporal logic approach,” *ACM Trans. Embed. Comput. Syst.*, vol. 18, pp. 96:1–96:21, Oct. 2019
9. **P. Kyriakis** and G. Moustris, “Terrain following for fixed-wing unmanned aerial vehicles using feedback equivalence,” *IEEE Control Systems Letters*, vol. 3, no. 1, pp. 150–155, 2019
10. G. P. Moustris, **P. Kyriakis**, and C. S. Tzafestas, “Feedback equivalence between curve & straight line tracking for unmanned aerial vehicles,” in *2018 European Control Conference, ECC 2018, Limassol, Cyprus, June 12-15, 2018*, pp. 2904–2908, 2018
11. J. V. Deshmukh, **P. Kyriakis**, and P. Bogdan, “Stochastic temporal logic abstractions: Challenges and opportunities,” in *Formal Modeling and Analysis of Timed Systems - 16th International Conference, FORMATS 2018, Beijing, China, September 4-6, 2018, Proceedings*, pp. 3–16, 2018