Samuel Triest

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Education	**Carnegie Mellon University**	**Fall 2020 - Spring 2022**

Degree(s): M.S. in Robotics

	University of Rochester	**Fall 2016 - Spring 2020**

Degree(s): B.S. in Computer Science, B.A. in Business, minor in Electrical Engineering

GPA: 3.99/4.00 (*Summa cum laude*)

Advisors: Thomas Howard, Yuhao Zhu

Distinctions: Highest Honors in Research, Beta Gamma Sigma, Phi Beta Kappa

Relevant Coursework: Machine Learning, Autonomous Mobile Robots, Robot Control, Computer Vision, Data Mining, Advanced Algorithms

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Technical Skills

Programming Languages: Python, C++, Java, C, SQL

Frameworks/Tools: Pytorch, ROS, Tensorflow, Keras

Research Experience

Research Intern	**September 2019 - December 2019**

Dolan Lab [1], Carnegie Mellon University

Advisor: John Dolan

Continuing work on trajectory generation for autonomous vehicles in dense traffic via deep reinforcement learning. Implemented algorithms based on hierarchical reinforcement learning and low-level controllers to generate highway merging behaviors in dense traffic.

Robotics Institute Summer Scholar	**June 2019 - August 2019**

Dolan Lab, Carnegie Mellon University

Advisor: John Dolan

Researched reinforcement learning-based approaches to trajectory generation in autonomous vehicles, focusing on scenarios with high degree of interaction between vehicles. Developed algorithms for trajectory generation that combined traditional controllers and deep imitation learning and validated results on real-world highway data.

Undergraduate Researcher	**October 2018 - May 2020**

Horizon Lab, University of Rochester

Advisor: Yuhao Zhu

Researched integration of optical and hardware elements into training of computer vision algorithms in resource-constrained environments. Implemented optical forward-modeling using point-spread functions, and implemented motivational experiments for optical-algorithmic co-design.

Papers

Samuel Triest, Adam Villaflor, John M. Dolan

Ramp Merging Via Reinforcement Learning with Temporally-Extended Actions

2020 IEEE Intelligent Vehicles Symposium

Samuel Triest, Adam Villaflor, John M. Dolan

Learning Low-level Continuous Control for Ramp Merging in Dense Traffic

2019 RISS Working Papers Journal

Samuel Triest, Daniel Nikolov, Jannick Rolland, Yuhao Zhu

Co-Optimization of Optics, Architecture and Computer Vision Algorithms

WAX @ PLDI 2019

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[1] Now part of Argo AI Center for Autonomous Vehicle Research

Theses	**Samuel Triest**	
	Unsupervised Reinforcement Learning in Environments with Strong Priors	
	University of Rochester	

Presentations	Robotics Institute Summer Scholars Research Showcase (Poster)	Aug. 2019
	WAX @ PLDI 2019 (Talk)	June 2019
	University of Rochester Undergraduate Research Symposium (Talk)	April 2019
	ACM Student Research Competition @ ASPLOS 2019 (Talk, Poster)	April 2019

Awards, Grants, Scholarships	Award for Excellence in Undergraduate Research in Computer Science	May 2020
	Honorable Mention, CRA Outstanding Undergraduate Researcher Award	Dec. 2019
	NSF REU Scholarship (NSF Award 1659774, CMU RISS)	June 2019
	Gold Medalist, ACM Student Research Competition @ ASPLOS 2019	April 2019
	Dean's Scholarship (University of Rochester)	Sept. 2016-May 2020
	Dean's List (University of Rochester, 6/6 eligible semesters)	Sept. 2016-May 2019

Teaching and Professional Service	**Teaching Assistant**	
	Artificial Intelligence	Spring 2018, Fall 2018
	Algorithms	Fall 2018, Spring 2020
	Computer Architecture	Spring 2019
	Business Information Systems	Spring 2019
	UR Robotics Club	
	Vice President	May 2019 - May 2020
	President	May 2018 - May 2019
	Lab Manager	May 2017 - May 2018

Industry Experience	**Product Management Intern**	**Summer 2018**
	Waterline Data	

Conducted research and created POC for scheduling jobs using constraint satisfaction. Contributed several plugins for Waterline integration with third-party software. Expanded scope of Waterline's product demo, assisted with updating sandbox and demos for Microsoft Azure.

	Engineering Intern	**Summer 2017**
	Waterline Data	

Contributed test cases and automation to several product features. Created a utility to detect duplicate data. Leveraged existing APIs of the Waterline Data Catalog to determine the likelihood of data duplication between data resources using existing metadata and generate a report in Tableau.

Independent Study Projects	**Robotics Workshops**

Implemented a series of workshop for the Robotics Club at the University of Rochester covering various algorithmic components of robotics, including kinematics, planning, Markov decision processes, etc.

Domain-Specific Language for Graph Algorithms

Designed and provided theoretical motivation for a domain-specific language for graph algorithms based on highly composable parallel graph primitives. Implemented parallel versions of a representative set of graph algorithms (including BFS, SSSP, connected components, k-core decomposition) using this language.