

Ekaterina Tolstaya

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(240) 449 5602

programming

Python, C++, Java

coursework

Machine Learning,
Advanced Robotics,
Learning in Robotics,
Convex Optimization,
Probability Theory

languages

English fluency
Russian fluency

education

2016–	Ph.D. in Electrical Engineering	University of Pennsylvania
2016–2017	M.Sc. in Robotics	University of Pennsylvania
2012–2016	B.Sc. in Electrical Engineering, Magna Cum Laude	University of Maryland
	B.Sc. in Computer Science	

research

2016–	GRASP Laboratory , Dr. Alejandro Ribeiro, Dr. Vijay Kumar <i>Research Assistant</i> Reinforcement learning for aerial robotics using kernel function approximation <ul style="list-style-type: none"> Integrated OpenAI Gym with the ROS, Gazebo and MAVROS-based OpenUAV simulation stack for modular reinforcement learning experiments Formulated and implemented using Python state-action value function approximation methods for problems with continuous state and action spaces 	University of Pennsylvania
2015–2016	Intelligent Servosystems Laboratory , Dr. P.S. Krishnaprasad <i>Women in Engineering Research Fellow</i> Mobile robot navigation using sound source localization and human body tracking	University of Maryland
2013–2015	MEMS, Sensors and Actuators Laboratory , Dr. Reza Ghodssi <i>Women in Engineering Research Fellow, RISE Honors Program Fellow</i> Real time biofilm sensing using electrochemical methods	University of Maryland
2013	Center for Nanoscale Science and Technology , Dr. Veronika Szalai <i>Summer Undergraduate Research Fellow</i> Characterizing a solar fuels catalyst	NIST

industry

2018	Microsoft Research Research Intern, <i>Adaptive Systems and Interaction Group</i> <ul style="list-style-type: none"> Implemented an inverse optimal control algorithm to learn from real air traffic Developed motion planning applications for the AirSim autonomous vehicle simulator and worked to enable Linux support 	Redmond, WA
2016	Microsoft Electrical Engineering Intern, <i>Hololens Hardware</i> <ul style="list-style-type: none"> Designed test tools for signal integrity and DC resistance measurements Implemented a software-defined power supply, including a DC/DC converter, embedded system design, and C software implementation 	Mountain View, CA
2015	Microsoft Electrical Engineering Intern, <i>New Product Introduction</i> <ul style="list-style-type: none"> Conducted failure analysis on next-generation hardware Performed statistical analysis of the data from the hardware assembly line to support the factory process change and increase the return on investment 	Redmond, WA
2014	Texas Instruments Semiconductor Engineering Intern, <i>Process Integration and Parametric Test</i> <ul style="list-style-type: none"> Developed an online system for notifying engineers about trends in the factory's parametric test results using R Analyzed data from passive and active experiments to support a test process change and reduce factory costs 	Richardson, TX

publications

- 2018 **E. Tolstaya**, E. Stump, A. Koppel, and A. Ribeiro, "Composable Learning with Sparse Kernel Representations," International Conference on Intelligent Robots and Systems (IROS), Oct. 1-5, 2018.
- 2018 **E. Tolstaya**, A. Koppel, E. Stump, and A. Ribeiro, "Nonparametric Stochastic Compositional Gradient Descent for Q-Learning in Continuous Markov Decision Problems," American Control Conference, June 27-29, 2018.
- 2018 A. Koppel*, **E. Tolstaya***, E. Stump, and A. Ribeiro, "Nonparametric Stochastic Compositional Gradient Descent for Q-Learning in Continuous Markov Decision Problems," IEEE Trans. Automatic Control (submitted), Mar. 2018.
- 2017 S. Subramanian, **E. Tolstaya**, T. Winkler, W. E. Bentley, and R. Ghodssi, "An Integrated Microsystem for Real-Time Detection and Threshold-Activated Treatment of Bacterial Biofilms," ACS Appl. Mater. Interfaces, 2017, 9 (37), pp 31362–31371.
- 2016 S. Subramanian, **E. Tolstaya**, W. E. Bentley, and R. Ghodssi, "Real-time impedimetric sensing of bacterial biofilms in microfluidics," 26th Anniversary World Congress on Biosensors, May 25-27, 2016.
- 2014 **E. Tolstaya**, Y. Kim, S. Chu, K. Gerasopoulos, W. E. Bentley, and R. Ghodssi, "An Inductive-Capacitive Sensor for Real-time Biofilm Growth Monitoring," American Vacuum Society 61st International Symposium, November 9-14, 2014.
- 2014 M. Gnerlich, **E. Tolstaya**, J. N. Culver, D. Ketchum, and R. Ghodssi, "Solid Micro-supercapacitor using Directed Self-Assembly of Tobacco Mosaic Virus and RuO₂," American Vacuum Society 61st International Symposium, November 9-14, 2014.

teaching

- 2018 **Signal and Information Processing** University of Pennsylvania
Graduate Teaching Assistant
- 2017 **Stochastic Systems Analysis and Simulation** University of Pennsylvania
Graduate Teaching Assistant
- 2016 **Introduction to Electrical and Computer Engineering** University of Maryland
Undergraduate Teaching Fellow
- 2015 **Introduction to Electrical and Computer Engineering** University of Maryland
Undergraduate Teaching Fellow
- 2014 **Introduction to Engineering Design** University of Maryland
Laboratory Teaching Fellow

awards

- 2018 **ESE Best Doctoral Citizen Award** University of Pennsylvania
- 2016 **National Science Foundation Graduate Research Fellowship** University of Pennsylvania
- 2016 **Omicron Delta Kappa Leadership Honor Society** University of Maryland

interests

professional: aerial robotics, reinforcement learning, planning, simulation, sensing
personal: weightlifting, snowboarding, travel