

Kaiyu Zheng

Contact

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Education

Current **University of Washington** Seattle, WA
Master of Science in Computer Science
Expected graduation: June 2018

June 2017 **University of Washington** Seattle, WA
| Bachelor of Science in Computer Science, Minor in Mathematics
Sept 2013 cum laude, with honors in Computer Science
Thesis: “*Learning Large-Scale Topological Maps Using Sum-Product Networks*”
— Advisers: Andrzej Pronobis, Rajesh P. N. Rao

Publications

Learning Graph-Structured Sum-Product Networks for Probabilistic Semantic Maps

Kaiyu Zheng, Andrzej Pronobis, Rajesh P. N. Rao
AAAI Conference on Artificial Intelligence (AAAI) 2018.

Learning Semantic Maps with Topological Spatial Relations Using Graph-Structured Sum-Product Networks

Kaiyu Zheng, Andrzej Pronobis, Rajesh P. N. Rao
IROS 2017 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities

Presentations

Nov 15th 2017 **Probabilistic Semantic Mapping Using Graph-Structured Sum-Product Networks**, at *Industry Affiliates Research Day at the University of Washington Computer Science & Engineering* in Seattle, WA. (oral and poster presentation)

Sept 28th 2017 **Learning Semantic Maps with Topological Spatial Relations Using Graph-Structured Sum-Product Networks**, at *IROS 2017 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities* in Vancouver, BC, Canada. (oral and poster presentation)

May 19th 2017 **Training Deep Probabilistic Models for Semantic Mapping with Mobile Robots**, at *20th Undergraduate Research Symposium at the University of Washington* in Seattle, WA. (poster presentation)

Honors and Awards

Graduated cum laude, with honors in Computer Science (2017)
Annual Dean’s List (2013-2014, 2014-2015, 2015-2016)

Research Experience

<i>Current</i>	Robotics State-Estimation Lab	University of Washington
April - Sept 2017	Advisers: Andrzej Pronobis, Rajesh Rao Proposed to model semantic maps with topological spatial relations using Graph-Structured Sum-Product Networks, a new, deep, probabilistic structured prediction approach. The paper was accepted to AAAI 2018.	
Jan - May 2017	Created a large dataset of fully-annotated robot sensory information, localization, and topological maps, which can be used for learning deep models.	
April - Dec 2016	Maintained an integrated Robot OS System on the SCITOS G5 mobile robot. Improved navigation system for the robot significantly, and developed a sub-system to handle recovery behavior. Contributed a ROS navigation tuning guide to the ROS community. The guide and video demo are available on ROS tutorials .	
April - June 2015	Movement Control Lab	University of Washington
	Advisers: Vikash Kumar, Emanuel Todorov Visualized sensory data on Myo, a wearable gesture control armband. Used Myo to control a 3D-printed small arm that can be worn, acting as a third arm.	
March - May 2014	ATLAS Alignment Group, Dept. of Physics	University of Washington
	Adviser: Shih-Chieh Hsu Studied the global χ^2 algorithm for three-plane track fitting in the ATLAS LHC experiment, through reading a thesis paper provided by the professor.	

Industry Experience

June - Sept 2015	Chicago Mercantile Exchange. Software Engineering Intern	Chicago, IL
	Worked in the trading-floor technology team and developed a planning & allocation web application to substitute for an Excel-driven workflow, using Java and Groovy.	
June 2015	UW Information Technology. Web Developer	Seattle, WA
	Developed and maintained university websites including IT Connect, eScience,	
Oct 2014	Labgeeks, etc. Workflow followed agile development cycle using JIRA.	

Teaching Experience

	Teaching Assistant , University of Washington	
Spring 2018	CSE 311: <i>Foundation of Computing I</i> . Instructors: Paul Beame, Kevin Zatloukal	
Winter 2018	CSE 446: <i>Machine Learning</i> . Instructor: Sham Kakade	
Fall 2017	CSE 373: <i>Data Structures and Algorithms</i> . Instructor: Evan McCarty	
Winter 2017	CSE 446: <i>Machine Learning</i> . Instructor: Emily Fox	
Fall 2016	CSE 311: <i>Foundation of Computing I</i> . Instructors: Paul Beame, Shayan Oveis Graham	

Volunteer Experience

April - June 2017	Volunteer Tutor at <i>Dept. of Computer Science & Engineering</i>	Seattle, WA
Nov 2014	Volunteer Food Packer at <i>Food Lifeline</i>	Seattle, WA
April 2014	Table Demonstrator at <i>Paws-on Science Husky Weekend</i>	Seattle, WA