

GUANGZHI TANG

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RESEARCH INTERESTS

Neurorobotics, Neuromorphic Computing, Spiking Neural Networks

EDUCATION

Ph.D Computer Science Sep 2017 - Present

Rutgers University, New Brunswick, NJ

Advisor: Prof. Konstantinos Michmizos

Research Affiliation: Computational Brain Lab, CBIM

M.Sc Computer Science Sep 2015 - May 2017

Rutgers University, New Brunswick, NJ

Advisor: Prof. Konstantinos Michmizos

Thesis: Gridbot: Towards a Neuroinspired Navigation System for Robot Planning.

B.Sc Computer Science Sep 2011 - May 2015

Nanjing University, Nanjing, China

Advisor: Prof. Yang Gao

Thesis: Fast Online Learning in Imperfect Information Extensive Games.

PUBLICATIONS

Conferences

- **Tang G**, Michmizos K. Gridbot: An autonomous robot controlled by a Spiking Neural Network mimicking the brain's navigational system. *International Conference on Neuromorphic Systems (ICONS)*, Knoxville, TN, 2018.

Workshops

- **Tang G**, Michmizos K. Gridbot: A Spiking Neural Network Model of the Brain's Navigation System for Autonomous Robots. *Neuro Inspired Computational Elements Workshop (NICE)*, Portland, OR, 2018.
- **Tang G**, Michmizos K. NeuRobotics: A Spiking Neural Network Model of the Brain's Spatial Navigation System for Autonomous Robots. *Conference on Cognitive Computational Neuroscience (CCN)*, New York, NY, 2017.
- **Tang G**, Michmizos K. Gridbot: Spike-Based Head Direction Cells Employing Bayesian Inference. *Neuro Inspired Computational Elements Workshop (NICE)*, San Jose, CA, 2017.

RESEARCH EXPERIENCE

Computational Brain Lab, Rutgers University May 2017 - Present

Research Assistant

- Developing a brain mimicking robotic navigational system on Intel's Loihi neuromorphic processor.
- Developed an astrocyte module on Intel's Loihi neuromorphic processor. This module provides an efficient solution for converting spiking neural networks into spiking neural-astrocyte networks.

- Developed a spiking neural network to drive a mobile robot to move and explore in an open environment. This is the first close-loop spiking neural network for robotics mimicking the brain's spatial system. Developed a spiking neural network for head direction cue integration using Bayesian inference. This network combined visual cues and self-motion cues to correct head direction errors. We implemented both networks in the robot operating system (ROS) to work with robots in real time.

RL Research Group, Nanjing University

Sep 2014 - May 2015

Undergraduate Research Assistant

- Developed an adaptive algorithm to play Texas Holdem poker against different types of players. The algorithm used online learning and sampling to reinforce conventional game theory approach and outperformed many other online methods in the field of imperfect information extensive games.

WORKING EXPERIENCE

Mobile Search Ranking Team, Baidu, Inc.

Jul 2014 - Sep 2014

Research & Development Intern

- Developed methods to find search query correlations in huge amounts of daily search raw data using Hadoop clusters. Developed personalized search ranking recommendation algorithms for users with different searching habits.

TEACHING EXPERIENCE

Teaching Assistant

Rutgers University

Introduction to Computational Robotics, CS 560

Fall, 2018

Computer Architecture, CS 211

Spring, 2018

Brain-inspired Computing, CS 525

Fall, 2017

Introduction to Computer Science, CS 111

Summer, 2016

HONORS & AWARDS

Intel INRC Grant Award

Intel, 2018

Microsoft & IEEE Young Fellow Scholarship Award

MSRA, 2014

Scholarship of the National Talented Program

Chinese Ministry of Education, 2013, 2014

EXTRA CURRICULAR ACTIVITIES

Member, Rutgers University Cycling Team

2015-Present

Vice President, Nanjing University Cycling Association

2013-2015

Certification for First Aid and CPR

2016-Present