

BRYON TJANAKA

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RESEARCH INTERESTS

Reinforcement Learning, Evolutionary Algorithms, Human-Robot Collaboration, Clustering

EDUCATION

Ph.D. Computer Science University of Southern California (Los Angeles, California, USA) Advisor: Stefanos Nikolaidis	Aug. 2020 - Present
B.S. Computer Science (ICS Honors program, AI specialization) University of California, Irvine (Irvine, California, USA) GPA: 4.0/4.0 • GRE: 170/170 quant., 161/170 verbal, 5/6 writing	Sept. 2017 - Jun. 2020
High School Bellarmine College Preparatory (San Jose, California, USA) GPA: 4.3/4.0 • SAT: 2350/2400	Aug. 2013 - May 2017

HONORS AND AWARDS

USC Graduate School Fellowship for Incoming Students	Feb. 2020
Summa Cum Laude, UCI School of ICS	Jun. 2020
NSF GRFP Honorable Mention	Mar. 2020
UCI Dean's Honor List	Sept. 2017 - Mar. 2020
UCI Regents' Scholarship	Sept. 2017 - Jun. 2020
UCI UROP Fellowship for <i>Improving Molecular Simulations</i>	Jan. 2020
UCI UROP Fellowship for <i>Improving Molecular Simulations</i>	Jan. 2019
UCI UROP Honorary Fellowship for <i>Implications of Mall Security Robots</i>	Jan. 2018
7 th /88 at ACM ICPC 2019 SoCal Regional	Nov. 2019
9 th /98 at ACM ICPC 2018 SoCal Regional	Nov. 2018
16 th /105 at ACM ICPC 2017 SoCal Regional	Nov. 2017
39 th /4103 in world, 4 th /202 in US at IEEEExtreme 13.0	Oct. 2019
74 th /4049 in world, 7 th /188 in US at IEEEExtreme 12.0	Oct. 2018
Best Entrepreneurial Hack at HackUCI V hackathon	Feb. 2019
John Hollowell Composition Program Award for Best Advocacy Project, UCI School of Humanities	May 2018
2017 VEX Robotics High School World Champion	Apr. 2017
Recognition for VEX Robotics Championship, Rep. Ro Khanna, CA-17	Aug. 2017

RESEARCH AND PROFESSIONAL EXPERIENCE

Research Assistant ICAROS Lab, University of Southern California Advisor: Stefanos Nikolaidis	Aug. 2020 - Present
Undergraduate Researcher Intelligent Dynamics Lab, UC Irvine Advisor: Professor Roy Fox	Oct. 2019 - Jun. 2020
Undergraduate Researcher Mobley Lab, UC Irvine PI: Professor David Mobley, Graduate Mentor: Jessica Maat	Oct. 2018 - Jun. 2020
Independent Undergraduate Researcher Mentor: Professor Caesar Sereseres	Oct. 2017 - Jun. 2018
Software Engineering Intern , Google Ads Google, Inc. (Mountain View, California, USA)	Jun. 2020 - Aug. 2020

Software Engineering Intern , Google Ads Google, Inc. (Mountain View, California, USA)	Jun. 2019 - Sept. 2019
Engineering Practicum Intern , Google Assistant Google, Inc. (Mountain View, California, USA)	Jun. 2018 - Sept. 2018

PRESENTATIONS

Improving Molecular Simulations through Force Field Development and Computational Techniques 2019 UCI Undergraduate Research Symposium	
Implications of Mall Security Robots on Privacy of Shoppers 2018 UCI Undergraduate Research Symposium	

ATTENDED CONFERENCES

ICLR 2020 (virtual; received travel award)	April 2020
UCI Undergraduate Research Symposium	May 2018, May 2019

ORGANIZED CONFERENCES

Webmaster, SoCal Graduate Pathways to STEM (http://vgsa.usc.edu/gps/)	Oct. 2020
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MENTORSHIP

Sam Sommerer (undergraduate, ICAROS Lab)	Aug. 2020 - Present
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LEADERSHIP & SERVICE ACTIVITIES

Senator USC Graduate Student Government	Aug. 2020 - Present
Webmaster USC Viterbi Graduate Student Association	Aug. 2020 - Present
Internal Vice President, Competitor ACM, UC Irvine Chapter	Sept. 2017 - Feb. 2020
Speaker, Volunteer Google Girl-Powered VEX Robotics Workshop	Jul. 2017, Aug. 2018, Jun. 2019

SELECTED PROJECTS

Actor-Critic by Committee (ACBC) Associated with: Undergraduate Researcher at Intelligent Dynamics Lab Hierarchical reinforcement learning algorithms typically use a high-level controller to compose sub-policies sequentially or combinationally. Inspired by work on ensembles, we developed an algorithm, ACBC, in which outputs from multiple sub-policies, or experts, are composed with a linear combination. As the experts can control their weights, ACBC performs both sequential and combinational composition without a high-level controller.	Oct. 2019 - Jun. 2020
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Improving Molecular Simulations through Force Field Development and Computational Techniques Associated with: Undergraduate Researcher at Mobley Lab smirnoff99Frosst is a molecular dynamics force field, a set of parameters which defines how atoms interact in a system. Like many force fields, smirnoff99Frosst lacks parameters for improper torsions, which determine the planarity of molecules. This project involved building a pipeline which analyzes the eMolecules database of 6 million molecules to create new parameters, thus increasing the accuracy of smirnoff99Frosst.	Oct. 2018 - Jun. 2020
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Multithreaded Affinity Clustering Associated with: Software Engineering Intern at Google Affinity clustering is a clustering algorithm which approximates the high quality of hierarchical agglomerative clustering while running in linear time. In this project, a multithreaded version of affinity clustering was implemented, optimized, and evaluated. Ultimately, this algorithm has applications in Ads and Search quality. This work is included in two pending publications.	Jun. 2019 - Sept. 2019
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