

Sophia Sun

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EDUCATION

University of California San Diego, San Diego, CA — Ph.D. 2018 - present
Artificial Intelligence Group, Computer Science and Engineering
Advisor: Rose Yu

Wellesley College, Wellesley, MA — B.A. June 2018
Double Major in Mathematics and Computer Science.

Massachusetts Institute of Technology, Cambridge, MA — *Cross Registration* 2016 – 2018
Coursework: 6.006 Introduction to Algorithms, 6.034 Artificial Intelligence, 21M.380 Music and Technology, 6.S094 Deep Learning for Self-Driving Cars (winter session), 6.867 Machine Learning (graduate level)

RESEARCH EXPERIENCE

Graduate Student Researcher, UC San Diego AI Lab San Diego, CA 2018.9 – present
PI: Prof. Rose Yu
* Trajectory prediction and modeling for pedestrian and vehicle time-series data.
* Uncertainty quantification for neural networks and machine learning empowered decision making under uncertainty.

Research Assistant, Johns Hopkins University Baltimore, MD 2017.6 – 2018.6
PI: Prof. Suchi Saria; NSF Research Experience for Undergraduate program
* Poster: *Predicting in-Hospital Cardiac Deterioration from Heterogeneous Medical Time-Series*.
* Data pipelining and machine learning for of multi-modal and multi-resolution medical time-series data.

Research Assistant, music21 (MIT) <http://web.mit.edu/music21/> Cambridge, MA 2016.10 – 2018.2
PI: Prof. Michael Cuthbert
* Investigated the expression of sentiments in songs based on lyrics, melodic, harmonic, and other musical data extracted from sheet music through computational methods. (Paper in *Empirical Musicology Review*)

INDUSTRY INTERNSHIP / PROJECTS

Research Scientist Intern, Amazon Robotics RAD 2020.6 – 2020.9
(*reinforcement learning, optimization*)
* Machine learning for multi-robot trajectory planning in amazon's fulfillment centers.

Amazon Alexa Prize Challenge, team UC San Diego 2019.9 – 2020.5
(*reinforcement learning, natural language processing*)
* Principal member of one of the 10 final participating teams. Incorporation of RL in to conversational AI.

Software Engineer Intern, Google DeepMind London, U.K. 2018.6 – 2018.9
(*Golang, backend engineering*)
* Secure Electronic Health Records data pipelining, analysis, and verification.
* Improved interpretability and verifiability of analytical algorithms deployed in Deepmind's Streams App.

Data Science Intern, Musical.ly (now TikTok) Shanghai, China 2016.6 – 2016.8
(*Java, Hadoop on Spark, SQL, JavaScript/JQuery*)
* Social media data analytics and monitoring pipelines using Hadoop on Spark and AWS's Elastic MapReduce.

PUBLICATIONS

Sophia Sun, Robin Walters, Jinxi Li, Rose Yu. "Improved Probabilistic Trajectory Forecasting with Equivariant Continuous Convolution", In Preparation, 2022
Sofy Yudistkaya*, Derek Kwan*, **Sophia Sun***. "Karaoke of Dreams: A multi-modal neural-network generated music experience." *Proceedings of the Joint Conference on AI Music Creativity (CIMC+MUME)*, 2020
Sophia Sun, Michael Scott Cuthbert. "Emotion painting: lyric, affect, and musical relationships in a large lead-sheet corpus." *Empirical Musicology Review* 12.3-4. 2018

TALKS & WORKSHOPS

Probabilistic Symmetry for Improved Trajectory Forecasting Talk at UCSD CSE Research Open House AI spotlight	San Diego, CA	2022
Reinforcement Learning 101 Three-part workshop series for artists at Arts Counsel Korea (ARKO)	online	2020
Natural Language Processing for Creatives Workshop at mars.college tech/art residency	Bombay Beach, CA	2020

TEACHING

Teaching Assistant , CSE251C Machine Learning Theory, UC San Diego	Spring 2021
Teaching Assistant , CSE291: Topics in Search and Optimization, UC San Diego	Winter 2020
Tutor , CS231 Algorithms, Wellesley College	2017, 2018
Tutor , CS230 Data Structures, Wellesley College	2016

LEADERSHIP

Graduate Women in Computing (GradWIC) , UC San Diego	Vice President, 2019 – present
The Center for Ethics in Science & Technology , UC San Diego	Board Member, 2018 – 2020
Slater International Center , Wellesley College	Student Mentor, 2015 – 2018

SCHOLARSHIPS & HONORS

Sigma Xi Honors Research Society , Wellesley College	2018
Research Experience for Undergraduates at Johns Hopkins University, National Science Foundation	2017
O'Hanlon Conference Scholarship (Grace Hopper), Wellesley College	2017

SERVICE

CSE PhD Orientation Graduate Student Moderator and Panelist (Sept 2021), UC San Diego
CSE Masters Orientation Graduate Student Moderator and Panelist (Sept 2021), UC San Diego
Chair of UCSD ACM-W Student Chapter (2020-current), UC San Diego
Graduate Women in Computing Mentorship Program Mentor (2020-current), UC San Diego
CS PhD Information Session Panelist (2020), UC San Diego