Jared Hwang

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EDUCATION

University of Southern California, Los Angeles, CA — May 2021–Dec 2022
Master of Science, Computer Science (expected 2022); GPA 4.00

Tufts University, Medford, MA — Aug 2016–May 2020
Bachelor of Science, double major Computer Science, Physics; GPA 3.94
summa cum laude, N. Hobbs Knight Scholarship, Sigma Pi Sigma Honor Society

EXPERIENCE

Machine Learning Research Assistant, Dr. Taritree Wongjirad, Tufts University, Medford, MA — May 2020–Sep 2021

- Designed and implemented file compression method using machine learning autoencoders in Python/C++
- Achieved up to 80% smaller file sizes of ROOT detector images compared to traditional JPEG compression
- Built neural network with spatial loss algorithm to classify and segment particle interactions in detector images
- Cleaned and labeled detector data using Python and ROOT; created two benchmarks to evaluate neural network

Research Assistant, Dr. Janet Conrad, MIT Laboratory for Nuclear Science, Cambridge, MA — Jun 2018–Mar 2020

- Led development of a first-of-its-kind flexible, parallel particle accelerator simulation code and interface in Python
- Ran million+ particle scale simulations with superior real-world accuracy and up to 20% faster than prior solutions
- Engineered diagnostic tools that analyzed and presented results (energy, emittance) of high-resolution simulations
- Assembled and monitored dihydrogen beam line and beam control system for 10+ hours of uptime

Research Assistant, Dr. Anna Sajina, Tufts University, Medford, MA — Sep 2017–May 2018

- Analyzed, manipulated, and visualized large astronomical data sets using Python and TOPCAT
- Collected, cross-matched, and unified data from two astronomical surveys (HerMES, SERVS)

PROJECTS

Data Visualization of U.S. Avocado Consumption, Tufts University, Medford, MA — Mar 2020

- Created an interactive visualization displaying U.S. avocado price and volume trends, in team of two
- Processed data sets using Python, and programmed frontend using JavaScript D3
- Presented, compared, and summarized historical trends in 41 U.S. cities in an easily digestible manner

LEADERSHIP & INVOLVEMENT

Computer Science Teaching Assistant, Tufts University, Medford, MA — Sep 2018–May 2020

- TA for COMP40 Machine Structure and Assembly Language, and COMP105 Programming Languages
- Taught concepts and course material in office hours three times a week
- Co-led a weekly discussion to overview and teach course material

Hackathon Coordinator and Mentor, Tufts University Polyhack, Medford, MA — Oct 2019

- Oversaw scheduling on event weekend and managed seminars and activities, in team of four
- Responded to technical and domain-specific questions as part of a team of mentors

RELEVANT COURSEWORK

- Algorithms
- Computation Theory
- Database Systems
- Data Structures
- Machine Learning
- Artificial Intelligence
- Machine Structure and Assembly Language Programming
- Programming Languages
- Computational Physics
- Electronics
- Quantum Information Theory

SKILLS

Computer: Proficient in Python, C++, C, Java, JavaScript, SQL, Ruby, MATLAB, HTML, Git, Unix, PyTorch
Language: Conversational Mandarin, Conversational Japanese