Jared Hwang

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EDUCATION

University of Southern California, Los Angeles, CA *Jun 2021 – Dec 2022*
M.S. Computer Science (expected 2022); GPA 4.00

Tufts University, Medford, MA *Aug 2016 – May 2020*
B.S. 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, Taritree Wongjirad, Tufts University, Medford, MA *May 2020 – Present*
- Designed and implemented file compression method using machine learning VQVAE autoencoder in Python/C++
- Achieved up to 80% smaller file sizes of ROOT detector images compared to traditional JPEG compression
- Implemented neural network with novel loss algorithm for particle-interaction classification and segmentation
- Clean and label detector data using Python and ROOT
- Design benchmarks to qualify results of neural network

Research Assistant, Janet Conrad, MIT Laboratory for Nuclear Science, Cambridge, MA *Jun 2018 – Mar 2020*
- Built, tested and benchmarked a large-scale flexible particle accelerator simulation code and interface in Python
- Developed diagnostic tools; analyzed and presented results of high-resolution simulations
- Assisted in assembling and running H_2^+ beam line and beam control system

Computer Science Teaching Assistant, Tufts University, Medford, MA *Sep 2018 – May 2020*
- TA for COMP40 Machine Structure and Assembly Language, and COMP105 Programming Languages
- Explained concepts and course material in office hours three times a week
- Co-led a weekly recitation to overview course material
- Graded homework assignments and exams

Research Assistant, Anna Sajina, Tufts University, Medford, MA *Sep 2017 – May 2018*
- Analyzed, manipulated, and visualized large astronomical data sets using Python and TOPCAT
- Crossmatched and unified data from two astronomical surveys (HerMES, SERVS)

PROJECTS

2D/3D Ising Model Simulator, Tufts University, Medford, MA *Apr 2020*
- Built an interactive Python 2D and 3D magnetic phase transition simulator, with team of three
- Implemented diagnostic tools for understanding of temperature, size etc. on magnet behavior

Avocado Consumption Data Visualization, Tufts University, Medford, MA *Mar 2020*
- Created an interactive visualization displaying avocado price and volume trends, in team of two
- Processed datasets using Python, and implemented frontend using JavaScript D3

COURSEWORK

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

SKILLS

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