Franklin Wang

(650) 223-4390 @ fxwang@mit.edu

Links

GitHub **frankxwang**
Linkedin **frankxwang**

Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Pursuing CS Degree
2022 - 2026

PALO ALTO HIGH SCHOOL

2018 - 2022

Notable Coursework

FOOTHILL COLLEGE

Multivariable Calculus
Linear Algebra
Differential Equations
Discrete Math

DEEPLEARNING.AI

Completed Andrew Ng's **deeplearning.ai** 5 part specialization course on Coursera

Skills

PROGRAMMING LANGUAGES

Python • Java • C++ • C#

ML/DATA SCIENCE LIBRARIES

TensorFlow • Keras • NumPy • SciPy • Pandas • Scikit-image • Scikit-learn

Awards

INTERNATIONAL SCIENCE AND ENGINEERING FAIR 2021

- 1st Place in Physics & Astronomy
- Peggy Scripps Award for Best Science Communication

DAVIDSON FELLOW LAUREATE 2021

- Received top $50K scholarship for machine learning asteroid detection research project
- Awarded to only the top 4 projects

USA COMPUTING OLYMPIAD

- Ranked in the top 100 for the 2020 US Open contest for the Platinum (highest) division
- Experienced with Java and C++ for competitive programming

Research

FAINT, FAST-MOVING ASTEROID STREAK DETECTION

2019 - 2022 **Links:** **GitHub Repo** **Research Presentation**

- Developed a novel algorithm which utilizes Convolutional Neural Networks and a purely synthetic dataset to find fast moving near-Earth asteroids in CCD telescope data
- Detected six previously undiscovered asteroids in just four nights of data from the Zwicky Transient Facility which were missed by ZTF's own detection algorithms
- Improved upon ZTF's previous research by creating a near-Earth asteroid detection approach that does not require any real image data (which involves heavy amounts of manual data collection and annotation)
- Research paper accepted to the MNRAS Journal and was presented at the **AAS 240 Conference**

ORBIT DETERMINATION OF 2004 LJ1 WITH THE SUMMER SCIENCE PROGRAM

Summer 2021 **Links:** **GitHub Repo**

- Wrote Method of Gauss program in Python to find orbit of potentially hazardous asteroid 2004 LJ1 using observations made from Sierra Remote Observatories & Central Washington University
- Used approaches such as iterative optimization, Newton's method, Taylor series, least-squares, Monte Carlo sampling

Work Experience

NLP RESEARCH INTERN AT UNIPHORE

Summer 2022

- Contrastively train Bi-LSTM model to improve sentence embeddings for empathy detection in call center transcripts
- Experiment with multimodal (audio + text) models for emotion prediction

SOFTWARE INTERN AT NOAH MEDICAL

Summer 2020

- Used C++ and C# for mesh decimation, sensor tracking & registration, navigation visualization, and sensor accuracy evaluation
- Worked frequently with quaternions, rotation matrices, and vectors

APPLE PI DEEP LEARNING CLASS INSTRUCTOR

2020 - 2022

- Created and taught the curriculum which made complex topics in deep learning like gradient descent and linear algebra accessible to high school students

Other Programming Projects

VISUAL ML

Links: **GitHub Repo** **Website** **Writeup by #cut50**

- An online neural network sandbox that allows users to create and train convolutional neural nets without needing to know how to code

FIRSTSTEP.ID

Links: **GitHub Repo** **Website**

- FirstStep.id is a website that allows those who have recently been released from jail to figure out what forms of identification they may need to apply for (State ID, Driver's License, etc)
- Work with the #cut50 nonprofit, created the backend using Flask and Python
- Won 1st place at the Second Chances Empathy Hackathon at Santa Clara University