Franklin Wang

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Links

GitHub **frankxwang**
Linkedin **frankxwang**
ORCID **0000-0003-4488-7355**

Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CS and Math Double Major
Expected Graduation: 2025

Notable Coursework

MIT

Computational Structures
Design & Analysis of Algorithms
Probability & Random Variables

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-learn

Awards

INTERNATIONAL SCIENCE AND ENGINEERING FAIR

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

DAVIDSON FELLOW LAUREATE

- 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

Applied Research Projects

DEEP LEARNING FOR ASTEROID STREAK DETECTION

2019 - 2022 **Links:** **GitHub Repo** **arXiv PDF** **DOI**

- Published first-author research paper in peer-reviewed journal & presented at the AAS 240 Conference
- Developed novel data simulation strategy to train a CNN to detect asteroids in telescope images, discovered six new asteroids
- Created & optimized the entire asteroid detection pipeline: preprocessing images, training & deploying the CNN, and processing detections for manual review

ORBIT DETERMINATION OF 2004 LJ1 WITH THE SUMMER SCIENCE PROGRAM

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

- Wrote Method of Gauss program in Python to calculate orbit of potentially hazardous asteroid 2004 LJ1 using remote observations we made
- Leveraged 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 trained Bi-LSTM model using TensorFlow to improve sentence embeddings for empathy detection in call center transcripts
- Experimented with multimodal (audio + text) models for emotion prediction

SOFTWARE INTERN AT NOAH MEDICAL

Summer 2020

- Utilized 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 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**

- Created an online neural network sandbox that allows users to create and train convolutional neural nets without coding knowledge
- Worked with a team of 4 at a hackathon to create and present the project
- Ported the website to a purely client-side version after the hackathon

FIRSTSTEP.ID

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

- FirstStep.id helps previously incarcerated individuals find the ID they need
- Worked with the #cut50 nonprofit, created the backend using Flask & Python
- Won 1st place at the 2nd Chances Empathy Hackathon at SCU