Yigao Fang

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EDUCATION

University of Pennsylvania **Philadelphia, PA**

- M.S.E. Data Science | Computer and Information Science Department *Aug. 2022 – Dec. 2023 (Expected)*
- **Coursework:** Web Developing, Big Data Analytics, Statistics for Data Science

University of Michigan (UM) **Ann Arbor, MI**

- B.S.E. Computer Science | Minor. Mathematics **GPA**: 3.98/4.00 *Aug. 2020 – May 2022*
- **Coursework:** Software Engineering, Data Structures, Algorithms, Operating Systems, Database Management, Machine Learning, Parallel Programming with GPUs, Game Design and Development, Computer Vision, Linear Programming, Numerical Methods

Shanghai Jiao Tong University (SJTU) **Shanghai, China**

- B.S.E. Electrical and Computer Engineering (ECE) **GPA**: 3.84/4.00 *Sep. 2018 – Aug. 2022*

RESEARCH EXPERIENCE

VR Simulation Program Based on Computer Vision, Research Intern *May 2021 – Sep. 2021*

- Generated a 256 * 256 binary graph based on de Brujin to provide a unique pattern for each 2-dimension position.
- Utilized **openCV** to analyze images captured by the VR helmet and calculate its coordinates with degree-of-freedom up to 6.
- Imported the 6 coordinates into **Unity** and realized an innovative VR system with a deviation less than 0.1 mm.

SELECTED PROJECTS

Catalyst Rational Design through Artificial Intelligence *May 2022 – Aug. 2022*

- Founded a platform that predicts force and energy of a catalyst based on structure using **Python** (Mean Avg. Error < 0.30 eV).
- Innovated a Colab pipeline that preprocesses the ASE dataset, improves the GemNet model, and trains on 2 million data points.

3D Horror Game: Asylum 7 *Feb. 2022 – Apr. 2022*

- Developed and published a first-person adventure game with 6 scenes based on **Unity**.
- Spearheaded the game's core technology mechanisms with **C#**, such as weapons, player movement, and trap controls.
- Organized the 3-stage (alpha, beta, gold) iterative design process and managed the researching, testing, and marketing tasks.

Birdcall Soundscape Classification *Mar. 2021 – Jun. 2021*

- Preprocessed the audio dataset of 62.9K birdcalls and conveyed them into trainable spectrum maps using librosa on **Python**.
- Strengthened convolutional neural network (CNN) to analyze the spectrum and visualized the result with F1-score = 64.49.

Pedestrian Intention Estimation for Autonomous Driving *Feb. 2021 – Apr. 2021*

- Applied Multiple Object Tracking to extract 128 * 128 images for each pedestrian from video clips to build training dataset.
- Transformed the Net18 model into **PyTorch** LSTM pipelines to estimate pedestrians' crossing-road intention with accuracy 77.5%.

EMPLOYMENT HISTORY

- **Teaching Assistant**, VP 160, Honors Physics; VE 230, Electromagnetics, SJTU *Apr. 2022 – Aug. 2022*
- **Teaching Assistant**, EECS 498/598 - 008, Deep Learning for Vision, UM *Jan. 2022 – Apr. 2022*
  - Covered the components that drive deep learning systems, such as convolutional networks and recurrent networks.
  - Discussed applications of computer vision, such as image segmentation and video classification using **Python** and Colab.

LEADERSHIP AND AWARDS

- **Leadership:** *Department Minister*, UM-SJTU Joint Institute Student Union; *Club President*, Monach Drama Troupe at SJTU
- **Programming Contest:** *Golden Medal*, University Physics Competition; *Meritorious Winner*, Mathematical Contest in Modeling
- **Scholarships:** China National Scholarship (Top 0.2%); Lum Scholarship (Top 1%)

SKILLS

Programming Languages: Python, Java, C/C++, C#, JavaScript, HTML, CSS, Verilog, R

Framework and Tools: PyTorch, TensorFlow, openCV, MATLAB, Linux, GitHub, Mathematica, Unity, Latex, SQLs