# Yigao Fang

(+1) 734-773-7398 | fgsepter@seas.upenn.edu | Philadelphia, PA, USA | https://fgsepter.github.io/ | fgsepter

## EDUCATION

**University of Pennsylvania** — **Philadelphia, U.S.**

- M.S.E. Data Science — *Aug. 2022 – Dec. 2023 (Expected)*

**University of Michigan (UM)** — **Ann Arbor, U.S.**

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

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

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

## SELECTED PROJECTS

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

- Developed a platform that predicts force and energy of a catalyst based on structure using Python (Mean Avg. Error < 0.30 eV).
- Designed a pipeline that preprocesses an open database and trains an improved deep learning model.

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

- Developed and published a first-person adventure game based on Unity.
- Designed and implemented game mechanisms such as weapons, zombie movement, and trap controls.

**Operating Systems Implementation** — **Feb. 2022 – Apr. 2022**

- Implemented threads and monitors (mutex and conditional variables) on uniprocessor and multiprocessor systems with C++.
- Implemented a pager that manages application processes' virtual address space and a multi-threaded network file server.

## RESEARCH EXPERIENCE

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

- Implemented the encoding process based on de Brujin to generate a binary graph that provides unique pattern for each position.
- Applied computer vision to analyze the images captured by the on-board camera to determine the coordinates of the VR helmet.
- Imported the six-degree-of-freedom coordinates into Unity and realized an innovative VR system without optical sensors.

**Database Optimization and Soundscape Classification**, Research Intern — **Mar. 2021 – June 2021**

- Preprocessed the audio dataset of birdcalls and conveyed it into a spectrum map of soundscape to create trainable dataset.
- Implemented convolutional neural networks to analyze the continuous soundscape dataset and visualized the learning result.

## EMPLOYMENT HISTORY

- **Grader**, EECS 498/598 - 008, Machine Learning for Vision, University of Michigan — **Jan. 2022 – Apr. 2022**
- **Teaching Assistant**, VP 160, Honors Physics; VE 230, Electromagnetics, SJTU — **Apr. 2022 – Aug. 2022**
- **Department Minister**, UM-SJTU Joint Institute Student Union — **May 2019 – May 2020**
- **Club President**, Monach Drama Troupe at SJTU — **May 2019 – June 2020**

## SKILLS

**Programming Languages**: Python, C/C++, C#, JavaScript, MATLAB, HTML, CSS, Verilog

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

## SELECTED AWARDS

China National Scholarship (Top 0.2%)
Yu Liming Scholarship (Top 1%)
Lum Scholarship (Top 2%)
University Physics Competition, Golden Medal
Mathematical Contest in Modeling, Meritorious Winner
University Honors & Dean's List, University of Michigan