Yigao Fang

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EDUCATION

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

- M.S.E. Data Science *Sept. 2022 (expected) -*

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

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

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

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

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.

SELECTED PROJECTS

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.

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

- Applied Multiple Object Tracking techniques to extract the images of pedestrian from video clips captured by on-board cameras.
- Applied the Net18 CNN model and designed a PyTorch based LSTM pipeline to estimate pedestrians' crossing-road intention.

Convolutional Kennel Implementation for Dog Species Identification **Feb. 2021 – Apr. 2021**

- Preprocessed image data and implemented convolutional neural networks on training, validation, and test dataset.
- Applied transfer learning and data augmentation to further increase AUROC, and visualized the classification 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, SJTU **Apr. 2020 – Aug. 2020**
- **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