Yigao Fang

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EDUCATION

University of Michigan Sept. 2020 – Apr. 2022(expected)
B.S.E. Computer Science | Minor. Mathematics Ann Arbor, U.S.

- **GPA**: 3.96/4.00

Shanghai Jiao Tong University(SJTU) Sept. 2018 – June 2022(expected)
B.S.E. Electrical and Computer Engineering (ECE) Shanghai, China

- **GPA**: 3.84/4.00 (Top 5%)

RESEARCH EXPERIENCE

VR Simulation Program Based on Grid Pattern, Research Assistant May 2021 – Aug. 2021
SJTU, Advisor: Prof. Peisen Huang Shanghai, China

- Designed a self-aggrandized encoding algorithm based on De bruijn series to generate grid patterns.
- Experimented the model by mounting camera on the VR helmet to capture grid patterns on the surrounding walls.
- Implemented the decoding process to calculate the six-degree-of-freedom coordinates of the VR helmet using images captured by camera.
- Realized a computer vision based VR simulation program with high accuracy to the scale of 1 mm.

Data Set Optimization and Classification, Research Assistant Mar. 2021 – June 2021
ETH, Advisor: Dr. Yuyi Wang Remote

- Applied machine learning methods to sort through and extract features of large data sets containing characteristics of investors.
- Eliminated redundant data and identified features of venture capitalists by making improvements to the existing Convolutional Neural Networks(CNN).
- Analyzed the audio of birdcalls and turn it into a spectrum map.
- Developed machine learning algorithms to identify bird sounds in continuous soundscape data, especially designed CNN networks to make identification of high correctness.

Anonymization Algorithm Based on Clustering Method, Research Assistant Mar. 2019 – Mar. 2020
SJTU, Advisor: Prof. Luoyi Fu Shanghai, China

- Studied and practiced three practical and effective anonymization methods, including k-anonymity, l-diversity, and t-closeness.
- Applied K-means clustering method as the core of our algorithm to effectively fulfill the k-anonymity and introduced utilize sensitive information as a new dimension to achieve l-diversity.
- Introduced dichotomy methods to optimize the data points distribution, and accomplished one report individually.

SELECTED AWARDS

Modeling Contests

2019 University Physics Competition (UPC)

- Designed a roller coaster and visualized it with 3D model.
- Defined the quantities to quantitatively measure the safety and irritability of roller coaster, and applied Euler's method in Matlab to track the motion of it at every instant of time.
- Awarded as **Golden Medal**. (Top 2%)

2020 Mathematical Contest in Modeling (MCM)

- Designed the best 3-dimensional geometric shape and optimal sand-to-water mixture proportion to use as a sandcastle foundation that will last the longest period of time on a seashore.
- Simulated cellular automata and Smoothed Particle Hydrodynamics (SPH) model with C++ and visualized the simulation through ParaView.
- Awarded as **Meritorious Winner**. (Top 10%)

Scholarships and Honors

- 2019 **China National Scholarship** (National Top 0.2%)
- 2019 **Yu Liming Scholarship** (Top 1%)
- 2019 **Undergraduate Merit Scholarship** (Top 10%)
- 2020 **Lum Scholarship** (Top 2%)
- 2020 **Tang Junyuan Scholarship Nomination Award** (Top 3%)
- 2020, 2021 **University Honors & Dean's List**, University of Michigan

SELECTED EXPERIENCES

Courses

- **CS Basics**: Data Structure, Models of Computation, Computer Organization
- **CS Advanced**: Machine Learning, Computer Vision, Algorithms, Database Management, Software Engineering, Parallel Programming with GPUs
- **Mathematics**: Linear Algebra, Discrete Math, Probability, Numerical Analysis, Linear Programming

Teaching

- SU.2020, **Honors Physics**, Teaching Assistant, SJTU

Service and Activities

- **Department Minister**, UM-SJTU Joint Institute Student Union
- **Club President**, Monach Drama Troupe at SJTU
- **Volunteer English Teacher**, Yunnan Volunteer Teaching Team

SKILLS

Languages : Python, C/C++, Java, HTML, SQLs(MySQL), Matlab, R, Latex
Tools : GitHub, Mathematica, CUDA Programming
Machine Learning : TensorFlow, PyTorch