Yigao Fang

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EDUCATION

University of Pennsylvania   Philadelphia, PA

o   Master of Science, Data Science | Computer and Information Science Department   *Dec. 2023 (Expected)*

o   *Coursework*: Software Systems, Simulation Modeling, Web Developing, Big Data Analytics, Statistics for Data Science

University of Michigan (UM)   Ann Arbor, MI

o   Bachelor of Science, **Computer Science** | Minor. Mathematics   **GPA**: 3.98/4.00   *May 2022*

o   *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

o   Bachelor of Science, Electrical and Computer Engineering (ECE)   **GPA**: 3.84/4.00   *Aug. 2022*

o   *Scholarships*: China National Scholarship (0.2%), Lums Scholarship (1.0%), Yu Liming Scholarship (1.0%)

TECHNICAL SKILLS

Programming: Python (pandas, PyTorch, NumPy, OpenCV, JAX), Java, C++, JavaScript, SQL, KDB, HTML, CSS, C#, C, R

Framework and Tools: Apache Maven, React, ARE, MATLAB, AWS, TensorFlow, Linux, Unix, Git, LaTeX, CUDA, Jira

PROFESSIONAL EXPERIENCE

Barclays Corporate & Investment Bank   New York, NY

Associate Quant Developer, Electronic Trading, SMAD Rates Group   *Jun. 2023 – Aug. 2023*

o   Implemented low-latency complex event processing (CEP) software trading systems such as algorithmic trading BARX Rates One platform in **Java** and **Apache Maven** for market making and electronic trading in the Fixed Income business.

o   Developed advanced quantitative finance trading strategies of **smart order routing** (SOR) for Rates & Credit, and modeled 21 system behaviors of the Fill and Store limit orders with algorithmic realistic engineering (ARE) frameworks and QCC tests.

SOFTWARE DEVELOPING EXPERIENCE

PennCloud Software System Design (https://github.com/fgsepter/SoftwareCloud)   *Jan. 2023 – May 2023*

o   Designed and built a distributed cloud platform in **C++** with webmail and storage service, analogous to Gmail and Google Drive.

o   Performed high-level software development for multi-threaded frontend servers that respond to client web service requests with RFC2616 **HTTP** protocols, cookie handling techniques, and large-file transfer encoding.

o   Implemented total-ordering group communication between servers and the key-value store (**KVS**) Bigtable using **TCP** socket.

Catalyst Rational Design with Full Stack Developing: Shanghai Jiao Tong University   *May 2022 – Aug. 2022*

o   Founded a platform that predicts the force and energy of a catalyst using artificial intelligence with **Mean Avg. Error < 0.30 eV**.

o   Innovated a **Colab** pipeline that preprocesses the ASE dataset and improves the **GemNet** model by adding 4 embedding layers.

o   Architected the backend server with **Python** that imports catalyst structures as input and evaluates on 2 million data points.

3D Adventure Game: Asylum 7 (www-personal.umich.edu/~fgsepter/Asylum7(Web)2/)   *Feb. 2022 – Apr. 2022*

o   Led a team of five and published a first-person adventure game with 6 scenes based on **Unity** and **C#**.

o   Spearheaded the game's core mechanisms with Coroutine, such as scene transitions, player movement, and trap controls.

o   Managed the 3-stage (alpha, beta, gold) iterative process on **Jira** and **GitHub**, following design, implementation, and test circles.

Computer Vision-Based Positioning System for Virtual Reality (VR): Peisen's Lab   *May 2021 – Sep. 2021*

o   Realized an innovative VR system based on computer vision and simulated player movement with **deviation < 0.1 mm**.

o   Generated a 256 * 256 binary graph based on de Bruijn to provide a unique pattern for each 2-dimension position.

o   Employed **Python** with **OpenCV** to calculate real-time 6 degrees of freedom coordinates of the VR helmet based on the 24-frame video clips captured by the onboard camera, and imported the position indexes into **Unity**.

LEADERSHIP AND ADDITIONAL EXPERIENCE

Leadership: *Department Minister*, UM-SJTU Joint Institute Student Union; *Club President*, Monach Drama Troupe at SJTU

Teaching Assistant: EECS498/598 - 008, Deep Learning for Vision & VP 160 Honors Physics & VE 230 Electromagnetics

Physics Olympiad: *Golden Medal*, University Physics Competition (1.6%); *First Price*, 13th Pan-Pearl River Delta Physics Olympiad

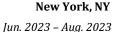**Mathematical Olympiad:** *Meritorious Winner*, Mathematical Contest in Modeling; *Second Price*, 33rd Chinese Mathematical Olympiad