

Ang (Jamie) Chen

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Education

Brown University

2022–2024

M.Sc. in Computer Science, 4.00/4.00

Providence, RI

Courses: Computer Graphics, Operating Systems, UI & UX, Blockchains & Cryptocurrencies

The Chinese University of Hong Kong

2018–2022

B.Eng. in Computer Science, with Honors, 3.56/4.00

Shenzhen, China

Courses: Data Structures, Database Systems, Distributed Systems & Parallel Computing, Operating Systems

Experience

Future Network of Intelligence Institute (FNii)

March 2022 - May 2022

Machine Learning Engineer Intern

Shenzhen, China

- Contributed to a research project on 3D human reconstruction using neural radiance fields (NeRFs).
- **Built data pipeline components** for extracting and rendering 3D human meshes with PyTorch3D.
- Wrote customized GLSL shader programs to **accelerate training data synthesis** by over 1000x.
- **Fine-tuned** the ResNet34 backbone with PyTorch on Renderpeople datasets to improve performance by 4%.

Shenzhen Research Institute of Big Data (SRIBD)

Sept. 2021 - Dec. 2021

Undergraduate Research Assistant

Shenzhen, China

- Leveraged **entropy-based unsupervised learning** to adapt a polyp segmentation ResUNet++ model trained on traditional endoscopic images to unlabeled video capsule endoscopy (VCE) data.
- Improved segmentation performance of the baseline model by **9.8%** in IoU and by **6.2%** in Dice score.

Projects

Realtime Volumetric Clouds Renderer

Nov. 2022 - Dec. 2022

C++, OpenGL, GLSL, Git

- Developed a volumetric clouds renderer using OpenGL and C++, which allowed for visually stunning clouds to be rendered **in realtime** in a 3D environment.
- Implemented **recursive ray marching** and **anisotropic scattering** to achieve convincing cloud lighting effects.
- Wrote a GLSL **compute shader** to generate and cache tileable 3D Worley noise as textures for cloud geometry.
- Optimized the renderer for performance, using techniques such as **adaptive step sizes** and **stochastic sampling** to balance visual quality with high frame rates, resulting in a **50% increase** in performance on average.

Student Information System

March 2021 - May 2021

Python, Flask, SQL, Git

- Developed the Flask backend of a new web service that helps students **navigate and shop** for courses.
- Implemented a backtracking course scheduler that **automatically picks and arranges** course sessions.
- Designed and implemented **automated unit tests** for backend components using the Python unittest library.
- Conducted a user survey among students and found **84%** of the participants preferred the redesigned system.

DIY Operating System

March 2020 - June 2020

C, Assembly, Git

- Developed a minimalist OS kernel with C and ASM, featuring **memory management** and a **virtual file system**.
- Implemented a **memory allocator** with an explicit free list to efficiently manage the virtual memory.
- Created a command-line **text editor application** to showcase the kernel APIs. The editor supports a range of features, including text insertion and deletion, search, page turning, and text files I/O operations.

Skills

Languages & Tools: Python, C, C++, SQL, Go, Java, JavaScript/TypeScript, React, HTML, CSS, Julia

Machine Learning: PyTorch, scikit-learn, NumPy, PyTorch3D, SciPy, TensorFlow/Keras

Visual Computing: OpenGL/GLSL, WebGL, OpenCV, Matplotlib, MATLAB

Awards and Scholarships

Undergraduate Research Award

2021

Dean's List

2020-2021, 2019-2020

Bowen College Scholarship

2018-2022