sylviasun@smu.edu
(945)360-6800

Ruoxin (Sylvia) Sun

GitHub | LinkedIn
Website | Portfolio

Summary

Aspiring software engineer specialising in **gameplay and engine development and large-scale systems**. Skilled in C++ and Python, with hands-on experience in graphics, AI pipelines, and gameplay tools. Passionate about building scalable, player-focused technologies and immersive game experiences.

Education

Southern Methodist University — Dallas, United States
Master of Interactive Technology in Digital Game Development (Software Development) — *Aug 2025 – Present*

Technical University of Munich — Munich, Germany
Exchange Student, Bachelor of Informatics — *Apr 2024 – Aug 2024*

National University of Singapore — Singapore
Bachelor of Computing in Computer Science (Honours) — *Aug 2021 – June 2025*

- **Specialisation**: Computer Graphics and Games, Artificial Intelligence

Publications

- **Sun. R**, Li. T, Tim. T, Ng. Q, Bhojan. A. (2025). GAGA: Game Asset Generative AI Pipeline. **International Conference on Teaching, Assessment and Learning for Engineering (IEEE TALE 2025).**
- Janaka, N., Zhao, S., Ram, A., **Sun, R.**, Tan Jing Wen, S., Li, D., & Hsu, D. (2025). Progressive Sentences: Combining the Benefits of Word and Sentence Learning. **Adjunct Proceedings of the 27th International Conference on Mobile Human-Computer Interaction, 1–12.** https://doi.org/10.1145/3737821.3749564

Experience

Fragcolor Pte. Ltd. — Singapore
Game Engine Programmer Intern — *May 2023 – Oct 2023*

- Developed and optimised **C++ engine modules**, improving rendering scalability and runtime efficiency.
- Implemented **gameplay and visual systems** for the company's flagship title to demonstrate engine capabilities.
- Prototyped **LLM-powered no-code workflows**, reducing iteration time for designers and non-technical users.
- Collaborated with engineers in an **agile environment** to improve performance, stability, and usability.

The Synteraction (formerly NUS-HCI) Lab — Singapore
Part-time Research Intern — *Feb 2024 – Dec 2024*

- Conducted **literature review** on multimedia learning systems, building a foundation for new research directions.
- Designed and led **usability experiments**, producing actionable insights that improved interaction flow.
- Developed interactive prototypes using **Python and React**, evaluated through iterative user testing.

Projects

MetalCore (Unreal Engine)

- **Best Project Award** in the **22nd STePS** NUS School of Computing Term Project Showcase.
- Built gameplay systems and UI in **Unreal Engine** using C++/Blueprints, enhancing player engagement.
- Collaborated with a team of 5 to design **combat, progression, and core gameplay loops**.

Glimmerwood (GameMaker Studio)

- Created a **side-scrolling endless runner** with player skills, interactive bosses, and scripted events.
- Facilitated **playtesting** and integrated feedback, improving balance and gameplay clarity.

3D Object Reconstruction Pipeline (Final Year Project)

- Developed a **modular Python pipeline** to generate PBR-textured 3D assets from 2D images.
- Containerised with **Docker** and deployed via REST APIs, built a web viewer in **React and Three.js**.
- **Benchmarked performance** across 50+ object types, optimising GPU runtime with CUDA.

Skills

Programming: Python, Java, C, C++, C#, R, Shell Scripting, PostgreSQL, OpenGL
Engines: Unity3D, Unreal Engine, GameMaker
Tools: Git, Perforce, Blender, Figma, Photoshop, Illustrator