

# XU CHEN

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## EDUCATION

### University of Southern California

January 2024-December 2025

#### Viterbi School of Engineering, Master of Science, Computer Science

- Master of Science, Computer Science

### Wenzhou-Kean University

September 2019-June 2023

#### Bachelor of Science, Computer Science (Math Minor)

- Zhejiang Province Government Scholar(2021-2022)
- Dean's Scholarship-Research and Innovation(2022); First Class, Dean's Scholarship scholar(2021)

## TECHNICAL SKILLS

- Languages: C++, C, C#, Python, JavaScript, Java, Node.js, GLSL, Shader Programming
- Graphics & Simulation: OpenGL, Unity, Shader Programming, GLSL, Instant-NGP, GLUT, PIC/APIC Fluid Simulation
- Tools & Libraries: Eigen, React Native, Figma, Git, Docker, Linux, macOS, Windows

## ACADEMIC PROJECTS

### 2D Fluid Simulation

March 2025-May 2025

- Built a 2D real-time fluid simulator in C++ using particle and grid methods, with PIC/APIC for stable velocity transfer.
- Visualized incompressible fluid flow and splash behavior using OpenGL and GLUT.
- Integrated B-spline interpolation, pressure projection, Eigen-based solvers, and custom input generators for flexible simulation setup with 2,500+ grid cells and 2,0000+ particles.
- GitHub: <https://github.com/YumengHe/Fluid-Simulation>

### Unity Plugin for NeRF (Instant-NGP)

March 2025-May 2025

- Built a Unity plugin integrating Instant-NGP for fast NeRF training and .obj/.ply import into Unity scenes.
- Automated dataset setup, Python training pipeline, and Unity scene integration.
- Conducted performance benchmarking of COLMAP across GPUs (3090Ti, T4, M1); optimized input resolution and memory usage to avoid crashes.
- GitHub: <https://github.com/reiirene/NeRFPlugin>

### Factor Fighter – 2D Puzzle Combat Game

October 2024-December 2024

- Developed a 2D math combat game in Unity using C# with draggable mechanics and equation-based enemy defeat logic.
- Designed multi-scene level structure, implemented door-based transitions, and handled state persistence across scenes.
- Logged gameplay data (e.g. level time, input patterns) to Google Sheets via Node.js for difficulty tuning and analytics.
- GitHub: <https://github.com/ChenXsue/Factor-Fighter> Play: <https://chenxsue.github.io/FactorFighterPageSite/gold/>

### Video Query and Frame Matching System

April 2024-June 2024

- Developed a system to identify source video and exact frame from a 10-second query video, using frame hashing (color\_BGR2GREY), audio fingerprinting, and SSIM (structural similarity index).
- Built a user-friendly UI to input query video and simultaneously display both source and query videos for comparison.
- Optimized search process, achieving video and frame identification in under one minute, enhancing retrieval efficiency.

## PROFESSIONAL EXPERIENCE

### Mobile App Developer

June 2024-June 2025

Lalmba Association (NGO), Monument, CO

- Developed an Android app using React Native to assist clinical staff and community volunteers in East Africa in screening and controlling acute malnutrition in children under five, based on guidelines.
- Led UI/UX design for accessibility and collaborated across teams to meet medical and technical specs for release.

### Software Development Intern

August 2022-September 2022

Institute of Advanced Manufacturing Technology, Ningbo, China

- Constructed a warehouse management system deploying SpringBoot and JavaScript, resulting in a 30% increase in inventory tracking efficiency.
- Integrated role-based access control using Shiro, enhancing system security and user management.
- Optimized application deployment process using Docker, reducing server deployment time by 40%.

## INTERESTS

- Language: English(Fluent), Chinese(Native)
- Interests: Fitness, Boulderling