Ruobin Li

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Education

Shanghai Jiao Tong University **Aug 2022 – Jun 2026 (expected)**
Bachelor of Software Engineering *Shanghai, China*
Cumulative GPA: 3.21/4.3
Research Interests: Computer Graphics
Relevant Coursework: CG(90), Math Found.(89), Comp Sys(89), Web Dev(89), Ent.Apps(82), Algo(80), Sys Eng(80)

Research Experience

3D Gaussian Splatting for Facial Reconstruction — Supervisor: Prof. Shuangjiu Xiao **Dec 2024 – Present**

- Assisted in optimizing 3DGS reconstruction quality using depth regularization techniques, achieving enhanced geometric accuracy in untextured areas and reduced floaters through depth map integration.
- Implemented depth prior generation pipeline using Depth Anything V2 (ViT-Large) model to produce grayscale depth maps from real-world datasets.
- Conducted comparative analysis of regularization impact across various scenes.

Projects

QtLink | *C++, Qt* | **October 2023**

- Created a dynamic link-matching puzzle game using C++ and the Qt Framework, featuring both single-player and two-player modes with an engaging, interactive GUI.
- Engineered core mechanics—including intelligent path-finding algorithms, a versatile power-up system, and comprehensive save/load functionality—while ensuring seamless real-time score tracking.
- Adopted a modular architecture by clearly separating components such as the main window, player management, and testing modules, resulting in a robust and scalable codebase.

Online Bookstore | *React, Spring Boot, MySQL, Redis, MongoDB, Eureka, neo4j, GraphQL, Docker* | **December 2024**

- Developed a full-stack e-commerce platform where users can effortlessly browse, purchase, and review books through an intuitive, responsive UI.
- Architected a sophisticated distributed system using Spring Cloud microservices, with Eureka as the Service Registry and an API Gateway managing multiple domain-specific microservices for user management, order processing, and inventory control.
- Designed the frontend using React and Ant Design, and optimized data fetching with Apollo Client integrated with GraphQL.
- Secured the platform by implementing a robust JWT-based authentication system along with RESTful APIs powered by Spring Boot, further enriched by real-time features via WebSocket and efficient data operations using MySQL with JPA.

NeatFlix Streaming Platform | *Flutter, React, Material-UI, Vite* | **November 2024**

- Engineered a comprehensive streaming solution by developing a cross-platform mobile app in Flutter paired with an administrative dashboard in React.
- Harnessed Cubit state management in Flutter to deliver key functionalities—such as an immersive home screen, robust search capabilities, dynamic playlists, and detailed viewing history—while ensuring a responsive design.
- Crafted an intuitive administrative dashboard with React and Material-UI, streamlining user management and comment moderation, underpinned by secure JWT authentication protocols.
- Developed RESTful APIs to ensure smooth communication between front-end and back-end systems, effectively managing user authentication, content curation, and VIP subscription services.

OpenGL-based 3D Scene Rendering | *C++, OpenGL, GLSL, GLFW, ImGui, Assimp* | **January 2025**

- Conceptualized and implemented an interactive 3D scene featuring dynamic elements like rotating windmills, simulated fireflies governed by physical modeling, and collision-responsive ball physics using vertex shader transformations and Bézier curves.
- Integrated versatile particle systems to simulate realistic snowfall via Koch snowflake fractals and LTC-based area lighting, achieving photorealistic rendering using Cook-Torrance BRDF and HDR post-processing.
- Developed intricate terrain generation through midpoint displacement algorithms and circular projection, coupled with Bézier-swept surface modeling to craft complex geometries.
- Leveraged ImGui for real-time parameter tuning and integrated Assimp for 3D model loading (e.g., Christmas trees, desks) with PBR texture mapping for albedo, roughness, and metallic properties.

Technical Skills

Languages: C, C++, JavaScript, Java, Dart, SQL, Python, GLSL, Shell
Technologies/Frameworks: Docker, React, Spring Boot, Vite, OpenGL, Flutter, Unity