

ZIKE (KEVIN) XU

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EDUCATION

ShanghaiTech University, Shanghai, China Sep. 2020 — Jun. 2024 (expected)

- *Status*: Bachelor of Engineering Candidate in Computer Science and Technology
- *GPA*: GPA 3.6/4.0

University of California, Berkeley, Berkeley, CA, United States Jan. 2023 — May 2023 (expected)

- *Status*: Exchange student in Computer Science and Technology
- *GPA*: (Not yet determined)

EXPERIENCE

Graphics Research Assistant, Digital Fluid & Unmanned Aerial Vehicle Research Lab (FLARE) 🔗

Rendering, Simulation PI: Prof. Xiaopei Liu 🔗 Feb. 2022 — Jun. 2022

- Improved high-performance volume rendering in smoke with high variance in density presented in *NanoVDB*.
- Enhancing the render result by implementing weighted environment lighting on GPU and extensive correctness testing.
- Implemented liquid rendering in this renderer with extremely intricate geometry and volume under *OptiX 7*.

Graphics and Robotics Research Assistant

Robotics, Simulation Advisors: Prof. Xiaopei Liu 🔗 and Prof. Wang Yang 🔗 Aug. 2022 — Present

- Improved current RL simulation system (gym) with an interactive and CFD-level fluid simulation system by FLARE for the UAV training.
- Accelerated training simulation with hierarchical simulation resolution.
- Implemented the reference empirical simulation program for rapid experiment and comparison.

PROJECTS AND LABS

Fledge Renderer 🔗 Apr. 2022 — Present

A small renderer to practice my mathematics and implementations

- Improved convergence rate with Quasi-Monte Carlo Methods and integrated *OpenImageDenoise*, *Embree3*, and *ISPC* compiler to meet actual needs.
- Implemented modern volume rendering techniques like *Delta-Tracking* and transmittance estimation with *Ratio-Tracking*.

Envoy 🔗 Dec. 2022 — Jan. 2023

An experimental BVH system with mesh pre-processing, fast tree building, traversal and intersection

- Improved robustness of tree-building methods and memory efficiency by pre-processing mesh with different mesh partition methods.
- Improved intersection throughput with vectorized triangle intersection.

Parallel Computing: Parallel BFS 🔗; Cuckoo Hash 🔗; Parallel BVH Construction 🔗 and its report 🔗; Paper Reading Report on *Lock-Free Locks Revisited* 🔗

Advanced Computer Graphics: 3D Convex Hull; Gilbert-Johnson-Keerthi Algorithm; SLIC Superpixels; Mesh Clustering and Segmentation; Neural Radiance Fields

HONORS AND AWARDS

1st Prize, National Olympiad in Informatics in Provinces (NOIP) Nov. 2018

4th Place Online, ISC High Performance 22 June 2022

SKILLS

- **Programming Languages:** Fluent with C/C++ and Python
- **Developing Skills:** Arch Linux, L^AT_EX, Unreal Engine 5, OptiX 7, PBRT, Neovim, OpenGL, Vulkan

MISCELLANEOUS

- **Website:** <https://zike.graphics> 🔗
- **GitHub:** <https://github.com/kririae> 🔗
- **Languages:** English, TOEFL 106; Mandarin, Native speaker