Kevin Chen

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EDUCATION

Yale University New Haven, CT
B.S. Computer Science, GPA 4.0/4.0 *Aug 2019 – May 2023*

Coursework Data Structures, Algorithms, Systems Programming, Operating Systems, Artificial Intelligence, Computer Graphics, Discrete Mathematics, Linear Algebra and Matrix Theory.

Extracurriculars VP of Engineering of Design at Yale; Design Chair of Yale Computer Society.

EXPERIENCE

Facebook (Remote) Menlo Park, CA
Software Engineer Intern *Jun 2021 – Aug 2021*

- Designed/developed scheduler service to rebalance Twine jobs and containers for stateful services. Improved fault tolerance and machine utilization; preliminary data shows up to 40k machines freed.
- Used Python, Thrift, and Twine scheduler API to perform asynchronous task moves on regional jobs.
- Twine is Facebook's cluster management system used to deploy and manage applications.

Yale Peabody Museum of Natural History New Haven, CT
Software Engineer (GitHub) *Jul 2020 – May 2021*

- Developed on COPISClient, a desktop app which controls a multi-gantry photogrammetry imaging system.
- Implemented tool path generation, OBJ model loading, and scene object picking. Used Canon EDSDK API.
- Integrated programmable OpenGL pipeline with shaders, removed all fixed-function calls, and used GPU instancing to reduce draw calls. Reduced frame render times by >80%.
- Implemented pub/sub model, MVC design, docstring conventions for extensibility and maintenance.
- Leveraged knowledge in Python, C++, OpenGL; used wx, GLM, GLSL.

Software Developer Intern *Jun 2020 – Jul 2020*

- Redesigned UI, refactored entire directory structure and 3D viewport. Implemented arcball navigation.
- Leveraged knowledge in Git, Python, OOP; used wx, OpenGL, C++. Practiced Agile and Scrum.

NIST Information Technology Laboratory Gaithersburg, MD
Research Intern (website) *Jun 2018 – Apr 2019*

- Developed an interactive virtual reality graphics website to represent 180+ 3D surfaces in the DLMF dataset. Used A-Frame, THREE.js, and physics libraries to enable VR grabbing of 3D models.
- Awarded the Outstanding Poster Presentation award. Work presented at SIGGRAPH 2018 BOF session.

PROJECTS

OS Development *Operating Systems*

- Iteratively built features in mCertiKOS, a verified OS. Implemented address translation, user processes, fork syscall, scheduler queues, multiprocessor support, synchronization primitives, xv6 COW filesystem.
- Implemented memory-mapped VGA 640*480 16-color mode and syscalls to toggle video mode. Added keyboard interaction and ability to playback GIFs. Used C, Assembly, and GDB debugging.

Miscellaneous *Graphics & Systems*

- Wrote ray tracer in C++. Implemented diffuse and Phong shading, mirror and glossy reflections, refractions and fresnel effects, soft shadows, jittered supersampling, and a bounding volume hierarchy (BVH).
- Implemented parser and shell in C. Included bash commands, IO redirects, and pipelines using syscalls.
- Implemented LZW compress and decompress. Worked on binary files, used a self-pruning string table.

Bulletin VR *(GitHub)* *Social WebVR*

- Developed VR website using A-Frame and THREE.js which allows users to post anonymous transcribed messages on a virtual bulletin board to tackle social anxiety; inspired by campus message boards.
- Won the Best Gaming/VR Hack at YHack 2019, out of 140+ submissions and 400+ participants.

TOOLS

Languages C, C++, Python, Java, Rust, Lisp/Racket, Assembly, Thrift, R, JavaScript, HTML/CSS

Technologies Linux/UNIX, Git, OpenGL/GLSL, LaTeX, Qt/Wx, CAD, Adobe Illustrator, InDesign