Kevin Chen

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Education

Yale University **May 2023**
B.S. Computer Science, Summa Cum Laude (New Haven, CT)

Coursework Algorithms, Data Structures, Systems Programming, Operating Systems, Linear Algebra, Computer Graphics, Physics Sims for Movies, Graphic Design

Leadership Co-President – Design at Yale, Creative Director – *The New Journal*

Experience

Software Engineer Intern **May 2022 – Aug 2022**
Meta, Reality Labs (Burlingame, CA)

- Improved the scalability & storage of spatial maps in the SLAM stack of Meta's *Presence Platform*.
- Integrated coarse and fine location sources to reduce the performance cost of localization on next-gen Oculus VR/MR headsets. Considered power draw and on-device memory limitations.
- Used C++, Thrift cross-language protocol, Bash, adb debugging.

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

- Improved machine utilization & fault tolerance by developing & designing Python service to automatically rebalance containers in Twine, Facebook's cluster management system.
- Used by core infrastructure teams and freed up to 40k machines across all data centers.
- Used Python, Thrift, SQL, Twine scheduler.

Software Developer **Jun 2020 – May 2021**
Yale Peabody Museum (New Haven, CT)

- Led work on COPISClient, a desktop control app for a multi-camera photogrammetry system.
- Developed & redesigned OpenGL rendering pipeline, reducing frame render times by >80%. Developed & designed GUI and 3D viewport, ViewCube navigation widget, scene object picking.
- Used Python, wxWidgets, OpenGL/GLSL. *Project link*.

Projects

font.fish font explorer *https://github.com/inchkev/font-fish* **2023**

- Developed & designed font.fish, a web tool to visualize & explore the entire Google Fonts repository using ML. Generated feature vectors using Inception v3, TensorFlow, and Keras.
- Reduced feature space to 2D using PCA, UMAP, and t-SNE reduction techniques.
- Built the website using JavaScript, Three.js, WebGL, and Flask. Live at *font.fish*.

Watercolor paint simulation *https://github.com/inchkev/watercolor* **2022**

- Developed real-time watercolor simulation in C++ with pigment flow effects based on the SIGGRAPH 1997 paper *Computer-Generated Watercolor*. Implemented edge darkening, backruns, blooming, and granulation. Built staggered grid, used forward Euler integration. *Project link*.

Distributed ray tracer **2021**

- Built a distributed ray tracer in C++ with diffuse/Phong shading, mirror/glossy reflections, refractions, soft shadows, and SSAA. Modeled & rendered animation using CMU mocap dataset.
- Implemented bounding volume hierarchy (BVH) to accelerate ray intersections. *Final video link*.

Interactive math in WebVR **2019**

- Developed interactive WebVR experiences to showcase 3D math functions in the *DLMF* dataset.
- Demoed at the SIGGRAPH 2018 BOF session *"Immersive Visualization for Research, Science and Art"*. *Project link*.

Skills

Programming C++/C, Python, JavaScript/TS, Java, HTML/CSS. *Learning WebAssembly & Rust*

Tooling Three.js, OpenGL, LaTeX, Figma, Adobe InDesign/Photoshop/Illustrator