Charles Wang

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Education

University of Pennsylvania · Philadelphia, PA   *expected May 2026*
School of Engineering & Applied Science
Bachelor of Science in Engineering

Major: Digital Media Design (Computer Graphics); **Minor:** Design; **GPA:** 3.71/4.0

Projects

Mini Minecraft
Voxel-based C++ game engine using OpenGL. Made in a team of three. I was responsible for implementing chunking, efficient rendering/face culling, block texturing, day/night sky system, flood fill lighting, inventory system, GUI and text rendering.

Mini Maya
Simple OBJ file mesh editor, inspired by Maya. Uses a half-edge data structure under the hood and supports Catmull-Clark subdivision, face triangulation, edge splitting, and skinning via joint skeletons (imported via JSON).

3D Rasterizer
CPU-based OBJ file renderer written in C++. Uses Qt to render to a 512x512 image. Supports antialiasing up to 16x, and two shading models (Lambertian, Blinn-Phong).

Leadership

UPenn ACM SIGGRAPH Chapter   *October 2022 — present*
Board Member, Webmaster
- Host tool workshops, talks from industry people and alumni, and demo reel reviews.
- Manage and continually update the club website, cg.cis.upenn.edu/siggraph with events and happenings. Written in React and uses Three.js for 3D models.

UPenn Game Research and Development Environment   *January 2023 — present*
Board Member, Event Organizer
- Develop club-wide games every semester with our 20+ club members.
- Host events such as our school-wide game jam, annual PAX trip, and guest speakers.
- Develop and maintain the brand identity and design of the club. Create social media assets using it. Built the club website, pennupgrade.com, using Astro.

Experience

Penn Engineering   *August 2023 — present*
Undergraduate Research Assistant, Full Stack Developer
- Built and shipped a full stack web platform for Scallop, a Rust-based neurosymbolic programming language optimized for logical tasks. Made in a team of three.
- Architected RESTful API routes that handle communication between the Next.js frontend, Flask backend, and MySQL database. Uses tRPC and Prisma.
- Implemented OAuth user authentication as well as auth-protected procedures of saving, loading, and publishing of custom user projects from the database.

New America   *June — August 2023*
build4good Intern
- Overhauled the build4good website to be more accessible, including screen reader support, better color palette, and other visibility issues via WordPress and Elementor
- Researched and presented findings for UI/UX regarding interactive geomapping timelines, to be used in New America's *Library Sit-In of 1939* project

Technical Skills

Languages
C++, GLSL, C#, Java, JavaScript/TypeScript, HTML/CSS

Platforms + Tools
Git/GitHub, Unity, Figma, Adobe Illustrator, Linux

Frameworks + APIs
OpenGL, Qt, React, Next.js

Relevant Coursework

- Interactive Computer Graphics
- Offline & Real-time Rendering
- Data Structures & Algorithms
- Computer Architecture
- Computational Linear Algebra

Interests

Open source, UI/UX, game dev, web dev, functional programming

Running, bass guitar, designing album covers, subway systems