Faith Luo (she/her)

CS Researcher // Engineer

Columbia University | NYC | LA
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PERSONAL STATEMENT

Researcher and engineer; Columbia University graduate with extensive experience in both research and industry. **5+ years** of experience working in collaborative environments. Research in computer graphics, cryptography, VR/HCI, human-data interaction.

Current research interests: type systems, computer graphics, physics simulation, medical imaging, accessibility

EDUCATION

Columbia University | Bachelor's, Computer Science 2026

GPA: 3.9/4.0. Egleston Scholar (funded research scholarship, ~10/year);
Core Scholar Award; Columbia Tau Beta Pi Engineering Honors (all years); Dean's List (all semesters)

Courses (PhD-level): COMS 6998 Readings in Language Design (Bjarne Stroustrop), COMS 6998 Foundations of Blockchains (Tim Roughgarden), COMS 4995 C++ Language Design (Stroustrop), COMS4118 Operating Systems, COMS4610 Computer Graphics, COMS4115 Programming Languages, CSOR4231 Analysis of Algorithms, COMS4705 Natural Language Processing, COMS4261 Cryptography, COMS4236 Computational Complexity, MATH4061 Real Analysis I, MATH4041/2 Modern Algebra I/II

Additional coursework at UCLA.

PUBLICATIONS

[2022] Thomas Chen, Hui Lu, Teeramet Kunpittaya, Faith (Alan) Luo. **A review of zk-snarks**. arXiv preprint arXiv: 2202.06877. 68 citations. [Google scholar link]

WORK EXPERIENCE

Engineer @ thatgamecompany 2023 -

Engineer at a record-breaking and historical game studio. Gameplay systems for Sky: Children of the Light (光遇). Project Lead on Quest system. Engineering Lead for Trust system, New Daily Quests, Events (2025). Designed, engineered, and operated networked systems for 2 million+ CCU. Expertise: C++, request queueing, liveops, memory management, etc.

Co-Founder @ Dark Forest (twitter.com/darkforest_eth) 2021

Experimental decentralized real-time platform with **24k+ followers** on Twitter (@darkforest_eth). Covered by MIT Technology Review. Supported by Ethereum Foundation, 0xPARC Foundation, Thiel Foundation. Expertise: Scaling for thousands of concurrent players, Typescript, React, WebGL, graphics optimization, etc.

Quantitative Developer Intern @ D. E. Shaw 2023

Static and dynamic analysis for python. Financial tooling infra.

Software Engineering Intern @ Figma 2022

Engineer and PM on Editor Experience. Plugins, extensibility, Typescript, React, WebGL, C++.

WebGL Developer @ Countable Web Productions 2019

Design and engineering for government projects. WebGL, UI/UX, Javascript, map integration.

RESEARCH EXPERIENCE

Research Assistant @ UCLA AIVC 2025 -

Learning models for meshing and computer graphics. Advised by Prof. Jiayin Lu, Ying Jiang, and Chenfanfu Jiang.

Research Assistant @ Columbia University 2021 - 2022

Zero-knowledge proofs and blockchains. Advised by Prof. Tim Roughgarden. 80 citations on arXiv preprint.

Applied Cryptography Researcher @ Ethereum Foundation 2020 - 2021

Developing applications for experimental applied cryptography. Focus building on open-source developer communities.

Research Assistant @ Columbia Graphics and User Interfaces Lab 2019 - 2020

XR-based HCI research for faciliating clinical procedures for dental students. Advised by Prof. Stephen Feiner

Research Assistant @ Tufts Visual Analytics Lab 2017

Human-data interaction research developing interfaces for deep feature engineering. Advised by Prof. Remco Chang

PROJECTS

[2024] **UnitLib** - A highly-optimized C++ matrix and vector library supporting arbitrary SI units and beyond. Comparable to or faster than glfw, the industry-standard matrix library, in a fraction of the lines of code. [github]

[2025] **xml-peruse** - A typed and memory-optimized XML parser for typescript/javascript. [github]

[2025] **charizardb** - Japanese-Chinese cross-linguistic (k|h)an(j|z)i mapping. [github]

[2025] 日本語/中文 **Anki Decks** - Interactive study resources for trilingual language curios. [github]

[2025] **follyanna** - Simple pinyin and furigana generation in the browser. [github]

[2023] **Sappho in Space** - An interactive ASCII art game implemented entirely in the browser. [github] [web game]

[2017] **Little Planet Procedural** - Procedural landscapes generated in the browser. 100+ stars on Github. [github] [demo]

ORGANIZATION AND TALKS

[2022] **Columbia Blockchain Reading Group**, presenter, host, and organizer (advised by Prof. Tim Roughgarden)

[2020] **zkSNARKs for Hidden Information Blockchain Games**, presenter (zkSummit 6)

[2020] **Dark Forest: Challenges and Constraints in ZK Gaming**, presenter (EthGlobal)

[2020] **Applied cryptography for games**, presenter/panelist (Stanford Blockchain Conference)

TEACHING AND OUTREACH

High School Mentor: Summer Camp for Applied Rationality (SPARC), a STEM program for high schoolers, 2021, 2022.

Teaching Assistant: Programming for Social Impact (Columbia): Fall 2019, Spring 2020, Fall 2022

VOLUNTEERING

Volunteer work in Asian-American communities, disability athletics, LGBTQ outreach, accessible music education, special needs education. **Organizations**: Los Angeles LGBTQ Center, THINK!Chinatown, ParaCliffHangers, Musical Mentors, African Angels Preschool, Casterbridge Music Academy, Mshadza Special Care Centre

AWARDS

[2019] Columbia Egleston Scholar; [2023] Columbia Core Scholar; [2021-2022] Interact Fellow; [2020] Neo Scholar

SKILLS

Programming Languages: C++, Typescript/Javascript, React, Python, C, Java, LaTeX, Linux shell, Mathematica

Spoken Languages: English (native), Chinese 中文 (fluent), Japanese 日本語 (fluent)