

Faith Luo

(she/her)

CS Researcher // Engineer

Columbia University | NYC | LA

<http://faith-luo.github.io> linkedin.com/in/faithluo

github.com/faith-luo faith.luo@columbia.edu

PERSONAL STATEMENT

Columbia University Egleston Scholar with extensive experience in both research and industry. **Cited researcher** specializing in cryptography, human-computer interaction, and computer graphics. **5+ years** of professional engineering experience working in collaborative environments. Passionate about the intersection of **technology and social impact**.

Current research interests: computer graphics, physics simulation, medical imaging, accessibility, digital governance

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 Stroustrup), COMS 6998 Foundations of Blockchains (Tim Roughgarden), COMS 4995 C++ Language Design (Stroustrup), 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

University of California Los Angeles | Visiting Researcher & Non-Degree Student

2025

Visiting researcher in Computer Science and Applied Math, advised by Jiayin Lu.

Supplemental coursework in computer science (GPA: 4.0/4.0).

PUBLICATIONS

[2022] Thomas Chen, Hui Lu, Teeramet Kunpittaya, Faith (Alan) Luo. **A review of zk-snarks**. arXiv preprint arXiv: 2202.06877. 85 citations. [\[Google scholar link\]](#)

WORK EXPERIENCE

Engineer @ thatgamecompany

2023 -

Engineer at a record-breaking and historical game studio focused on social impact. Developing live 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 realtime simulation and interaction with 2 million+ CCU. Managed teams of cross-functional collaborators across design, QA, publishing, support, localization, etc.

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

2021

Co-Founded company to develop applied cryptography research applications. Managed and produced a team of 8 engineers, designers, and researchers. Developed management skills through fundraising, publishing/marketing, hiring, managing finances, etc. **24k+ followers** on Twitter (@darkforest_eth). Covered by MIT Technology Review. Supported by Ethereum Foundation, 0xPARC Foundation, Thiel Foundation, Mozilla, SPARC, and others. Project has been cited by academic papers measuring its impact on applied cryptography.

Quantitative Developer Intern @ D. E. Shaw

2023

Engineer on Python Infra team. Static and dynamic analysis for financial tooling infrastructure.

Software Engineering Intern @ Figma

2022

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

WebGL Developer @ Countable Web Productions

2019

Design and engineering for canadian public service projects. WebGL, UI/UX, Javascript, map integration.

RESEARCH EXPERIENCE

Research Assistant @ UCLA AIVC

2025 -

Advised by Prof. Jiayin Lu, Ying Jiang, and Chenfanfu Jiang. Developing performant learning models in Python and C++ for meshing and computer graphics. Working collaboratively, compiling reading lists and presenting work to lab members. Mentoring a UCLA undergraduate student.

Research Assistant @ Columbia University

2021 - 2022

Advised by Prof. Tim Roughgarden. Researched zero-knowledge proofs and blockchains. Organized weekly reading group for undergraduate and graduate students. Published paper with 85 citations on arXiv preprint.

Applied Cryptography Researcher @ Ethereum Foundation

2020 - 2021

Developed applications for applied cryptography. Researched open-source developer communities and digital governance.

Research Assistant @ Columbia Graphics and User Interfaces Lab

2019 - 2020

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

Research Assistant @ Tufts Visual Analytics Lab

2018

Advised by Prof. Remco Chang. Human-data interaction research developing interfaces to empower Subject Matter Experts (SMEs) and small business owners to understand their data.

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](#)]

[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 2021

COMMUNITY INVOLVEMENT

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

Founded Doodle Tea Party, an arts activism organization for queer Asian-Americans in NYC. Partnered with local Chinatown businesses and hosted monthly workshops on arts as a form of dialog and intergenerational healing.

Organized a Chinese-American Jazz group and recorded an [album](#) of original music at the Rudy Van Gelder Studio.

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)