

Yuxiang Qiu

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Last updated in 2026-06-06

Education

University College London

09/2021 - 06/2025

MEng Computer Science

- **Grades:** First Class (1st year: 87%, rank: 1/150; 2nd year: 86%; 4th year: 85%, rank: 1/150)
- **Coursework:** Algorithms for Computer Systems, Computer Architecture & Concurrency, Decentralized Finance, Intro to Cryptography, Logic, Malware, Networked Systems, Security, Supervised Learning, Theory of Computation

Georgia Institute of Technology

08/2023 - 05/2024

BS Computer Science (Exchange Student)

- **GPA:** 4.0/4.0
- **Coursework:** Blockchain & Cryptocurrency, Compiler & Interpreter, Computer Graphics, Deep Learning, Design & Analysis of Algorithm, Processor Design, Quantum Computing

Experience

TensorZKP: Efficient Zero-Knowledge Proof Acceleration using Tensor Cores

09/2025 - 12/2025

National University of Singapore

- Developed **TensorZKP**, a GPU-accelerated zero-knowledge proving system that maps sumcheck and linear-time encoding operations onto tensor-core matrix multiplications.
- Integrated fixed-constant Barrett reduction (Shoup-style) into GEMM pipelines; implemented high-performance field arithmetic kernels for arbitrary primes with optimizations for Mersenne and pseudo-Mersenne structures.
- Engineered warp-specialized GEMM-based kernels for linear-time encoding, with load balancing via inverted expander graph.

Trustless Efficient Light Clients

10/2024 - 04/2025

University College London

- Designed **Mim**, a general-purpose light-client protocol achieving constant- or logarithmic-size proofs for blockchain committee rotations via folding-based SNARKs.
- Introduced a Merkle accumulator to reduce bootstrapping overhead and amortize SNARK compression proof generation costs over long blockchain histories.
- Implemented a full Rust system (>8,000 LOC) using arkworks and sonobe; evaluated on a Sui-like blockchain, enabling sub-12-hour single-day proofs and sub-7-day one-year history proofs with 1-3s verification time.

TaskEval

06/2024 - 09/2024

UCL Software Optimisation, Learning and Analytics Research Lab

London, UK

- Proposed **TaskEval**, a task-based evaluation framework for scoring software patch explanations via downstream LLM task performance, addressing limitations of LLM-as-a-judge methods.
- Constructed an evaluation infrastructure integrating SWE-bench; implemented fault localization and differential testing tasks.
- Conducted empirical studies evaluating agreement and ranking quality using Kendall's τ and Spearman correlation under varied prompting strategies and text perturbations.

Software Development Engineer Intern

06/2023 - 08/2023

Amazon

London, UK

- Researched cross-platform portability of Java apps running on Windows, resulting in a ~10-page research report.
- Developed a Java application and library that performs **incompatibility detection at the bytecode level** (checking for 7 different types of cross-platform issues) with **~80% accuracy and 90%+ recall** on real-world JARs.
- Optimized libraries by profiling hot spots and bringing parallelism to CPU-bound tasks, resulting in a **3x speedup**.

Teaching Assistant

UCL

- 2024-2025: COMP0002 Principles of Programming, COMP0004 Object-Oriented Programming
- 2022-2023: Developed an open-source course and tutored 12 students in six programming languages (C, C++, Rust, Haskell, Java, Python), shell scripting, computer networking, and frontend/backend development.

Projects

Probabilistic Data Structures and Algorithms

02/2025 - 04/2025

- Accelerated the Morris Counter by implementing **geometric sampling**, achieving **up to 8x speedup** while preserving error guarantees, validated through rigorous benchmarking on varied stream sizes and error parameters.
- Developed an **adaptive sketch selection mechanism** that dynamically chooses between Count Min Sketch and Count Sketch queries by estimating the L2 norm, **reducing MSE** across diverse Zipfian distributions.
- Designed **two novel Deletable Learned Bloom Filter**, a Sandwiched Learned Bloom Filter (SLBF) with two Counting Bloom Filters and a Learned Bloom Filter (LBF) with three Standard Bloom Filters, optimizing tradeoffs between FPR, FNR, and deletability, with simulations showing **superior FPR for SLBF** and **guaranteed deletability for LBF** with a controlled FNR.

TrueLearn

01/2023 - 08/2023

- **Led a team** of 4 students to **implement a Python machine-learning library** with a family of baseline and Bayesian classifiers for building learner models to predict their engagement with educational resources.
- **Created 9 static and interactive visualizations** to present the learner representations in humanly-intuitive ways.
- Advisor: Dr. Sahan Bulathwela

Awards

UCL Computer Science Best Overall Performance - Year 4

2025

UCL Computer Science Studentship for Research

2024

UCL Faculty Undergraduate Scholarships for Excellence (1 student per faculty, 1 out of 1000+ students)

2022

Publications

A Toolbox for Modelling Engagement with Educational Videos

Yuxiang Qiu, Karim Djemili, Denis Elezi, Aaneel Shalman Srazali, Mar'ia P'erez-Ortiz, Emine Yilmaz, John Shawe-Taylor and Sahan Bulathwela

Proceedings of the AAAI Conference on Artificial Intelligence, 2024

TrueLearn: A Python Library for Personalised Informational Recommendations with (Implicit) Feedback

Yuxiang Qiu, Karim Djemili, Denis Elezi, Aaneel Shalman, María Pérez Ortiz and Sahan Bulathwela

6th Workshop on Online Recommender Systems and User Modeling, ACM RecSys 2023