Yuxiang Qiu

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Education

University College London   09/2021 - 06/2025
MEng Computer Science
- **Grades**: 1st class (87%, 1st year, rank: 1/150), 1st class (86%, 2nd year)
- **Coursework**: Computer Architecture & Concurrency, Intelligent Systems, Logic, Theory of Computation, Security
- **Award**: UCL Faculty Undergraduate Scholarships for Excellence (2022), UCL Studentship for Research (2024)
- **Thesis**: Work on zk-SNARK and DAG-based blockchain systems. Advised by Prof. Philipp Jovanovic.

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, Zero Knowledge Proofs (S2023 MOOC, self-taught)

Experience

Research Assistant   06/2024 − 09/2024
UCL Software Optimisation, Learning and Analytics Research Lab   *London, UK*
- Advisor: Prof. Federica Sarro and Prof. Sergey Mechtaev

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
- Delved into the Java SE Specifications (JVMS and JLS), the JAR file specifications, and the OpenJDK source code
- 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**
- Optimized libraries by profiling hotspots 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 Programming Tutor ⧉: Tutored 11 students in 6 programming languages (C, C++, Rust, Haskell, Java, Python) and familiarized them with shell scripting, computer networking, and frontend/backend development

Open Source Contributions
- **PL**: `rust-lang/rust-clippy` (#11865, #12084, #12094), `typst/biblatex` (#34)
- **AI**: `pytorch/torcheval` (#195), `princeton-nlp/SWE-bench` (#186, #189, #212)

Projects

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
- Conducted **hyperparameter tuning** via grid search and evaluated library scalability by analyzing wall-clock time
- Contributed to the upstream (PEEK dataset): gather missing titles and descriptions for 30,000+ Wikipedia topics
- Advisor: Dr. Sahan Bulathwela

Logic Parser ⧉   10/2022 - 12/2022
- Devised a **one-pass iterative parser** and a **tableau-based SAT solver** for propositional and predicate logics
- Built efficient iterative algorithms for AST operations that support processing logic formulas of arbitrary size in a scalable way, with **performance comparable to the SOTA z3 solver** for propositional logic

Tetris AI   11/2021
- Modeled a search-based AI agent for Tetris to maximize the score for a given number of tetrominoes and time

- Optimized the evaluation function by **genetic algorithm** and achieved top 5 out of 170 students at the end

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

14th Symposium on Educational Advances in Artificial Intelligence (EAAI-24), co-hosted with AAAI-24

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

Skills

Languages: C++, C, Python, Rust, Java, Verilog, Solidity, HTML, CSS, JavaScript, Haskell, x86 Assembly
Frameworks: ANTLR, Bootstrap, Flask, Koa, OpenCV, OpenGL, PyTorch, scikit-learn, Vue.js