WILLIAM LUO QIAN

william@amsws.org ◇ willqian.com

EDUCATION

Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS)
August 2017 – May 2023 Cambridge, MA

PhD in Computer Science
Thesis: *Workload Adaptations for Contended Main-Memory Multicore Transactions*
Advisor: Dr. Eddie Kohler
Completed technical coursework:

- ⋆ Qualifying exam: "Exposing Latent Parallelism in Multiversion Concurrency Control"
- ⋆ Systems: Serverless Computing, Compilers, Systems Security, Networks Design Projects
- ⋆ Algorithms: Advanced Data Structures, Algorithm Engineering
- ⋆ Computation: Advanced Scientific Computing II

Massachusetts Institute of Technology (MIT) Cambridge, MA
February 2016 – September 2016 *GPA: 5.0/5.0*

MEng in Electrical Engineering and Computer Science
Completed technical coursework:

- ⋆ Thesis: "AuO: Audio Recorder and Editor on the Web"
  - Thesis supervisor: Dr. Eric Klopfer
  - Project lead: Mr. Daniel Wendel
  - Lab: MIT Scheller Teacher Education Program (STEP) Lab
- ⋆ Systems: Advanced Performance Engineering for Multicore Applications
- ⋆ Algorithms: Algorithmic Lower Bounds
- ⋆ Parallelism: Parallel Computing
- ⋆ Computation: Introduction to Numerical Methods

Massachusetts Institute of Technology (MIT) Cambridge, MA
August 2012 – June 2016 *GPA: 4.5/5.0*

SB in Computer Science and Engineering, and Mathematics
Completed technical coursework:

- ⋆ Systems: Performance Engineering of Software Systems; Computer Architecture; Computer Systems; Database Systems
- ⋆ Algorithms: Design and Analysis of Algorithms; Multicore Algorithms
- ⋆ HCI: User Interface Design and Implementation
- ⋆ AI and Machine Learning: Introduction to Machine Learning
- ⋆ Other: Introduction to EECS I, Introduction to EECS II from a Medical Technology Perspective; Software Construction

Thomas Jefferson High School for Science and Technology (TJHSST) Alexandria, VA
September 2008 – June 2012 *GPA: 4.41/4.0 (weighted)*

Thomas Jefferson Diploma[1]
Senior Research Project[2]: "Automated Object Detection Using Multi-Dimensional Gradients"
Completed technical coursework: Artificial Intelligence; Parallel Computing

RESEARCH EXPERIENCE

Opprtunities for Optimism in Contended Main-Memory Multicore Transactions September 2020
VLDB 2020 *Harvard*

◇ Yihe Huang, William Qian, Eddie Kohler, Barbara Liskov, Liuba Shrira
◇ Best paper award at VLDB 2020

Exposing Latent Parallelism in Multiversion Concurrency Control August 2017 – May 2019
PhD student *Harvard*

◇ Advisor: Dr. Eddie Kohler
◇ Qualifying examination for candidacy for PhD in Computer Science

AuO: Audio Recorder and Editor on the Web February 2016 – August 2016
Master's student *MIT*

◇ Thesis supervisor: Dr. Eric Klopfer
◇ Project lead: Mr. Daniel Wendel
◇ Thesis project for partial completiong of the requirements of the degree of Master of Engineering in Electrical Engineering and Computer Science, graduating class of September 2016

Concurrent Skip Quadtrees April 2014 – December 2015
Researcher *MIT*

◇ Supervisor: Dr. Nir Shavit
◇ Mentor: Dr. Alex Matveev
◇ SuperUROP (Undergraduate Research Opportunities Program) project for 2014-2015 school year
◇ Developing concurrent skip quadtrees using various concurrency models

A Linguistics Study on the Acquisition of Prepositional Phrases in Toddlers September 2012 – December 2012
Undergraduate researcher *MIT*

◇ Mentor: Dr. Bob Berwick
◇ Undergraduate Research Opportunities Program project in Fall 2012
◇ Developed a UI to help visualize syntax trees based on syntax tree markup

WORK EXPERIENCE

MongoDB Inc. June 2022 – present
Software engineer *New York, NY*

◇ Manager: Jacob Evans
◇ Query Optimization team
◇ Working on implementing parts of a new database query optimizer

[1] Equivalent to the Virginia Advanced Studies Diploma, with additional STEM requirements
[2] Senior capstone project, Computer Systems Laboratory

◇ Working on investigating and analyzing performance characteristics of key workloads

One R Squared, LLC December 2022 – April 2022
Research developer *New York, NY*

◇ Manager: Wen Jia Liu
◇ Worked on development infrastructure
◇ Worked on implementing support for trading spreads

Gem Software, Inc. August 2022 – November 2022
Software engineer *New York, NY*

◇ Manager: Einas Haddad
◇ Talent Discovery team
◇ Worked on search improvements to Prospect Search

Google, Inc. May 2019 – August 2019
Software engineering intern *Sunnyvale, CA*

◇ Mentor: Dr. Bing Zhang
◇ Supervisor: Dr. Himani Apte
◇ SQL Pipeline Streaming team
◇ Worked on data privacy in SQL Pipeline Streaming
  ⋆ Prototyped stateful streaming k-anonymity and contributed to streaming differential privacy design

Facebook, Inc. August 2016 – September 2017
Software engineer in Telecom Infra Project *Cambridge, MA*

◇ Managers: Mr. Amar Padmanabhan, Mr. Lior Berry
◇ Worked on an OpenCellular-related project in the Boston office

Google, Inc. June 2015 – August 2015
Software engineering intern *Seattle, WA*

◇ Mentor: Mr. Davor Bonaci
◇ Supervisor: Dr. Frances Perry
◇ Google Cloud Dataflow team
◇ Worked on developing a backend feature for batch Dataflow jobs

Quora, Inc. June 2014 – August 2014
Software engineering intern *Mountain View, CA*

◇ Mentor: Mr. Naran Bayanbat
◇ Supervisor: Mr. KahKeng Tay
◇ Worked on user growth team, projects related to new user experience
◇ Provided engineering support for multiple projects
◇ Helped update part of the company's CSS library

TEACHING AND ADVISING EXPERIENCE

CS 61 Systems Programming and Machine Organization August 2020 – December 2020
Teaching fellow *Harvard*

◇ Assisted with the transition to an online-only model
◇ Held weekly office hours

◇ Graded problem sets and exams

CS 61 Systems Programming and Machine Organization August 2018 – December 2018
Teaching fellow *Harvard*

◇ Worked on improving infrastructure for staff to check students' submissions for plagiarism
◇ Assisted in preparing weekly section material
◇ Held weekly office hours
◇ Graded problem sets and exams

CS 61 Systems Programming and Machine Organization August 2017 – December 2017
Teaching fellow *Harvard*

◇ Worked on better infrastructure provisioning for students
◇ Worked on including infrastructure for staff to check students' submissions for plagiarism
◇ Assisted in preparing weekly section material
◇ Held weekly office hours
◇ Graded problem sets and exams

6.005 Software Construction January 2016 – May 2016
Teaching assistant *MIT*

◇ Assisted in lectures
◇ Responsible for organizing the lab assistants
◇ Graded and annotated problem sets and quizzes
◇ Mentored and graded projects

6.S087 Art of Software January 2016
Instructor *MIT*

◇ Started as a new IAP course
◇ Aims to teach students about and immerse them in the software design process
◇ Will cover topics including code quality, code hygiene, software design paradigms, problem decomposition, making tradeoffs in the design process, and more
◇ Developing new and fresh curriculum for the course
◇ Limited enrollment of 16 students

6.172/6.871 Performance Engineering of Software Systems August 2015 – December 2015
Teaching assistant *MIT*

◇ Hold office hours and co-teach weekly recitations
◇ Responsible for coordinating the MIT POSSE mentorship program

Associate Advisor August 2013 – June 2016
Head associate advisor for Maseeh Hall *MIT*

◇ Work with a faculty advisor to advise freshmen in their first-year experiences
◇ Head associate advisor in Maseeh Hall for academic year 2015-2016
◇ Resident associate advisor in Maseeh Hall for academic years 2013-2014 and 2014-2015
◇ Provide guidance to freshmen in coursework selection
◇ Provide support to freshmen as a confidential resource
◇ Work with other associate advisors to facilitate a better first-year experience for freshmen

6.179 Introduction to C/C++ January 2015
Co-instructor *MIT*

◇ Worked with a co-instructor (another MIT student) to lecture and prepare homeworks
◇ Held daily office hours and assisted students with their final projects
◇ Around 100 students completed the course

6.005 Software Construction January 2014 – December 2014
Teaching assistant *MIT*

- ◇ Assisted in lectures (Autumn 2014)
- ◇ Held office hours and taught weekly recitations (Spring 2014)
- ◇ Responsible for managing code repository logistics for the course
- ◇ Graded and annotated problem sets and quizzes
- ◇ Mentored and graded projects

6.005 Software Construction August 2013 – December 2013
Lab assistant *MIT*

- ◇ Held lab hours every week
- ◇ Graded and annotated problem sets and quizzes

AWARDS AND RECOGNITIONS

46th International Conference on Very Large Data Bases September 2020
VLDB 2020 Best Paper Award *Harvard*

- ◇ Paper: "Opportunities for Optimism in Contended Main-Memory Multicore Transactions"
  - ⋆ Yihe Huang, William Qian, Eddie Kohler, Barbara Liskov, Liuba Shrira

EECScon April 2015
Poster session *MIT*

- ◇ 3^{rd} place poster
- ◇ Poster title: "Concurrent Skip Quadtrees Using Transactional Memory on Intel® Haswell Machines with Transactional Synchronization Extensions"
  - ⋆ William Qian, Alexander Matveev, Nir Shavit

USA Computing Olympiad April 2009 – April 2012
Gold division competitor *TJHSST*

- ◇ Gold division from March, 2012
- ◇ Silver division from April, 2009 to March, 2012

INITIATIVES AND INVENTIONS

Pjango 2013

- ◇ A template rendering system written in PHP. Inspired by Django's template rendering system, Pjango provides an extensible object-oriented infrastructure for MVC-style templated web development.
- ◇ Copyrighted since 2013
- ◇ For more information: http://willqian.com ("Pjango" tab)

Thomas Jefferson Invitational Open in Informatics October 2011 – March 2012
Chief Executive Officer *TJHSST*

- ◇ Started competition in 2011-2012 school year
- ◇ Aimed at high school and middle school students in the Northern Virginia area with interest in computer science
- ◇ Led the organization for the competition
- ◇ Website: http://tjhsst.edu/tjioi

TJHSST Intermediate Computer Team September 2009 – June 2011
Captain *TJHSST*

- ◇ Started team in sophomore year
- ◇ For sophomores and juniors attending TJHSST
- ◇ Ran team as captain *ex officio* in 2009-2010 school year
- ◇ Served as team captain in 2010-2011 school year
- ◇ Competed in several high school programming competitions
  - ⋆ First place at the American Computer Science League All-Stars Competition, Senior Division, May 2010
  - ⋆ First place at Virginia Commonwealth University High School Programming Competition, March 2011

ACTIVITIES

HMMT August 2017 – Present
Alumnus *Harvard*

- ◇ Provide advice and historical perspectives as needed to the organization
- ◇ Aid and support the officer team in planning for and executing events
- ◇ Promote efforts to improve community in the organization
- ◇ Lead efforts to formalize mission, values, and objects statements

Harvard SEAS Graduate Council (SEAS-GC) August 2018 – July 2022
Co-president, '19-'20, '20-'21 *Harvard*

- ◇ One of two co-presidents for academic years 2019-2020 and 2020-2021
- ◇ Represent SEAS-GC and SEAS graduate students in external communications
- ◇ Focus on student life and liaising
  - ⋆ Represent SEAS graduate students in ongoing conversations in SEAS's move to the Allston campus
  - ⋆ Coordinate events for prospective students during visit days
  - ⋆ Coordinate events for new students during orientation
  - ⋆ Coordinate events for SEAS graduate students during the semester

Harvard GSAS Graduate Student Council August 2017 – May 2018
SEAS – Computer Science Representative *Harvard*

- ◇ Represent SEAS to the GSAS Graduate Student Council
- ◇ Remain connected with other SEAS student leaders
- ◇ Raise SEAS-related questions and issues
- ◇ Vote in the interests of SEAS and its student body

MIT Committee on Curricula September 2015 – April 2016
Student Representative *MIT*

- ◇ One of four students serving on the committee
- ◇ Voting member of the committee
- ◇ Represent the undergraduate student body's interests and concerns on the committee
- ◇ Decide on proposals for changes in the curriculum, including new and changing courses, departmental programs, and institute academic requirements.

HMMT April 2015 – February 2016
Data Czar *MIT*

- ◇ High school math competition run as a collaboration between Harvard and MIT students
- ◇ Synthesize statistical data about the competition
- ◇ Run the online competitions for the November and February contests

Maseeh Hall Web and Software Committee September 2012 – December 2015
Committee chair/member *MIT*

- ◇ Committee chair from September 2012 to September 2015
- ◇ Webmaster for the dormitory
- ◇ Responsible for maintaining and updating the dormitory website
- ◇ Responsible for maintaining, moderating, and updating the official dormitory mailing lists
- ◇ Responsible for setting up and running elections in the dorm

Maseeh Hall Executive Committee January 2015 – December 2015
Vice President *MIT*

- ◇ Responsible for internal affairs
- ◇ Organizes and leads the committee chairs for Maseeh Hall
- ◇ Point of contact between committees and the Maseeh Hall Executive Committee

EECS[3] Department Representative October 2013 – May 2015
Maseeh Hall Representative *MIT*

- ◇ Representative for the MIT EECS department in Maseeh Hall
- ◇ Answered questions that freshmen and sophomores had about EECS
- ◇ Organized EECS events in Maseeh Hall

EECS Department Faculty Search Committee February 2014, February 2015
Undergraduate student representative *MIT*

- ◇ One of four undergraduates participating in meeting with and interviewing candidates for faculty positions in the EECS department at MIT

Men's Varsity Crew September 2012 – April 2014
Coxswain *MIT*

- ◇ Heavyweight Men's team from March 2013 – April 2014
- ◇ Lightweight Men's team from September 2012 – March 2013

[3]Electrical Engineering and Computer Science

INTERESTS

Academic

- ◇ Understanding problems in other fields that may benefit from high-performance computing
- ◇ Discovering new problems and applications for high-performance computing in other fields
- ◇ Enabling others to use computers in their fields, whether experienced, inexperienced, or unexperienced with programming
- ◇ Empowering the future generations to achieve fluency in using computers to solve problems at a young age
- ◇ Improving the quality, power, and accessibility of concurrent, parallel, and distributed computing
- ◇ Implementing new and better parallel algorithms and concurrent data structures

Other

- ◇ Education, particularly in identified science, technology, engineering, and mathematics fields
  - ⋆ College-level teaching, especially at introductory levels, to engage and encourage students to learn computer science, regardless of field, *especially* for students belonging to underrepresented groups and/or disadvantaged backgrounds
- ◇ Accessibility and equitability in opportunities for learning to compute
- ◇ Leadership training, especially for engineers
- ◇ East Asian history, in particular 20^{th} century conflicts

TECHNICAL SKILLS

Programming Languages	C, C++, Java, Python
Web Development	PHP, Django, HTML/HTML5, CSS/CSS3, JavaScript, SVG, SQL
Parallel Computing	POSIX Threads, OpenMP, MPI, OpenCL, CUDA, CILK+
Parallelism Paradigms	Threading concurrency, transactional memory, message passing
Typesetting and Mathematics	LaTeX, Mathematica, MATLAB
Human Languages	English (fluent), Mandarin Chinese (fluent), Japanese (moderate)

REFERENCES

Mr. Wen Jia Liu

- ◇ Relationship: Manager at One R Squared
- ◇ Email: wjliu@onersq.com

Mr. Richard Ho

- ◇ Relationship: CEO at One R Squared
- ◇ Email: rho@onersq.com

Ms. Einas Haddad
Engineering Manager — *Gem*

- ◇ Relationship: Manager at Gem
- ◇ Email: einas@gem.com

Mr. Emil Ibrishimov
VP of Engineering — *Gem*

- ◇ Relationship: Manager-manager at Gem
- ◇ Email: emil@gem.com

Dr. Eddie Kohler
Professor of Computer Science — *Harvard*

- ◇ Relationship: Ph.D. advisor
- ◇ Email: kohler@seas.harvard.edu
- ◇ Phone: 617-496-2630

Dr. John Girash
Director of Graduate Education — *Harvard*

- ◇ Relationship: Course instructor for pedagogy classes and SEAS GC advisor
- ◇ Email: jgirash@seas.harvard.edu
- ◇ Phone: 617-496-5956

Dr. Eric Klopfer
Professor; Director of the Scheller Teacher Education Program and the Education Arcade — *MIT*

- ◇ Relationship: Master's thesis faculty supervisor
- ◇ Email: klopfer@mit.edu
- ◇ Phone: 617-253-2025

Dr. Charles Leiserson
Professor of Computer Science — *MIT*

- ◇ Relationship: Instructor for performance engineering courses
- ◇ Email: cel@csail.mit.edu
- ◇ Phone: 617-253-5833

Dr. Rob Miller
Professor of Computer Science — *MIT*

- ◇ Relationship: Instructor for software engineering TA-ships and LA-ship
- ◇ Email: rcm@mit.edu
- ◇ Phone: 617-324-6028

Dr. Erik Demaine
Professor of Computer Science *MIT*

- Relationship: Former academic advisor, instructor for some algorithms courses
- Email: edemaine@mit.edu
- Phone: 617-253-6871