

Kaiwen Xue (Kevin)

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EDUCATION

Carnegie Mellon University Master of Science in Computer Science, QPA: 3.95/4.33	Pittsburgh, PA 2022.9–2023.12 (Expected)
Columbia University* Bachelor of Arts, Major: Computer Science, GPA: 4.03/4.33, <i>summa cum laude</i>	New York, NY 2020.9–2022.5
City University of Hong Kong* Bachelor of Science, Major: Computer Science, GPA: 4.03/4.33, <i>First Class Honours</i>	Hong Kong 2017.9–2020.5

*Joint Bachelor's Degree, equivalent to completing the degree at either institution

Most Relevant Courses: Operating Systems (Columbia W4118), Distributed Systems (CMU 15-440), Compiler (Columbia W4115), Computer Networks (CityU CS3201), Database (Columbia W4111), Functional Programming (Columbia W4995)

SKILLS

- Programming Languages: C, C++, Go, Python, OCaml, Haskell, Java, RISC-V Assembly
- Technologies: Git, Linux kernel, QEMU, OpenSBI, RISC-V Architecture
- Natural Languages: English (Bilingual Proficient), Mandarin and Cantonese Chinese (Native)

EXPERIENCE

Rivos Inc. Member of Technical Staff Intern - Software	Mountain View, CA 2023.5-2023.8
<ul style="list-style-type: none">• Improved full-stack software support for RISC-V Performance Monitoring Unit (PMU)• Implemented 3 RISC-V Instruction Set Architecture (ISA) extensions related to PMU on Linux kernel, QEMU, and OpenSBI• Reduced context switch cost by 64% and end-to-end runtime of perf command line tool on QEMU by 3.5%• Sent Linux kernel, QEMU, and OpenSBI patches to corresponding mailing lists for upstreaming discussion	
Columbia University Teaching Assistant - W4118 Operating Systems I	New York, NY 2021.9-2022.5
<ul style="list-style-type: none">• Cooperated with a teaching team of 8 to mentor a graduate-level 120-student class composed of advanced UNIX programming, operating systems concepts, and Linux kernel hacking for two consecutive semesters• Held office hours, graded homework and exams, and maintained assignments on Linux kernel programming• Received over 4.5 out of 5.0 in individual TA evaluation submitted by students	

REFEREED PUBLICATIONS

- Kaiyang Zhao, **Kaiwen Xue**, Ziqi Wang, Dan Schatzberg, Leon Yang, Antonis Manousis, Johannes Weiner, Rik van Riel, Bikash Sharma, Chunqiang Tang, and Dimitrios Skarlatos, "Contiguitas: The Pursuit of Physical Memory Contiguity in Datacenters," *Proceedings of the 50th Annual International Symposium on Computer Architecture (ISCA 2023)*, Orlando, FL, June 17-21, 2023. (21% accepted, 79/372, **Best Paper Award**)

SELECTED PROJECTS

Confidential Virtual Machine Live Migration Columbia University, Research Project	New York, NY 2021.6-2022.5
<ul style="list-style-type: none">• Extended feature of SeKVM, a secure cloud Kernel-based Virtual Machine (KVM) hypervisor enabling a software-based confidential virtual machine (VM)• Re-implemented SeKVM on multiple Linux kernel versions and ARM hardware• Designed VM live migration on SeKVM, keeping VM downtime at less than 3X of vanilla KVM• Devised a shared mapping kernel data structure to support migrating pages VM shared with hypervisor and implemented it in KVM and QEMU	

Pseudo Code Language Compiler

Columbia University, Course Final Project, W4115 Programming Languages and Translators

New York, NY

2022.2-2022.5

- Led a team of 4 to develop in OCaml a compiler for CLeuRoS, a pseudo-code-like programming language
- Designed high-level syntax of CLeuRoS and documented it in a language manual
- Implemented lexer, parser, and semantic checker using ocamllex and ocamllyacc
- Constructed a code generator converting abstract syntax tree into LLVM IR, supporting I/O, control flow, and basic data structures

HONORS

- ISCA Best Paper Award - ACM SIGARCH, 2023
- Member, Sigma Xi - Sigma Xi Committee, 2022
- Russell C. Mills Award - Columbia Fu Foundation School of Engineering and Applied Science, 2022
- Member, Phi Beta Kappa - Phi Beta Kappa New York Delta Chapter, 2022
- Member, GS Honor Society - Columbia School of General Studies, 2021
- Chow Sang Sang Joint Bachelor's Degree Scholarship - Chow Sang Sang Group, 2019
- Hong Kong SAR Government Scholarship - Hong Kong SAR Government Education Bureau, 2019

EXTRACURRICULAR ACTIVITIES

Flame (Wei Lu)

Hong Kong

Person in Charge - City University of Hong Kong

2018.10-2019.9

- Served as school deputy of a Chinese student media publishing opinion pieces on college student life and social issues
- Edited pieces produced by members from various institutions
- Organized multiple iterations of Fireside Chat (Wei Lu Ye Hua), a panel for members to express opinions on given topics