Yixuan Chen

Resume

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LukeXuan

Education

2019– **Ph.D.**, *Computer Science*, Yale University.

2017–2019 **Bachelor**, *Computer Science Engineering*, University of Michigan.

2015–2019 **Bachelor**, *Electrical and Computer Engineering*, Shanghai Jiaotong University.

Research Interests

Formal verification, programming languages, operating systems and applying formal verification in large and concurrent software systems

Publications

2020 *Armada: low-effort verification of high-performance concurrent programs*, by Jacob R. Lorch, Yixuan Chen, Manos Kapritsos, Bryan Parno, Shaz Qadeer, Upamanyu Sharma, James R. Wilcox, Xueyuan Zhao, 41st ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI '20), London, United Kindom

2019 *Verification of a Cache-optimized Data Structure*, by Yixuan Chen, Aurèle Barrière, Lennart Beringer, and Andrew W. Appel, first place winner at POPL 2019 Student Research Competition (POPL '19 SRC), Lisbon, Portugal

Experiences

2021 Winter **Teaching assistant**, *CPSC 421 Compilers and Interpreters*, Yale University.
- duties including holding office hours and grading

2021 Jan. **Student volunteer**, *POPL 2021*, Internet.
- duties including providing help for organizers

2020 Fall **Teaching assistant**, *CPSC 422 Design and Implementation of Operating Systems*, Yale University.
- duties including holding office hours and grading

2020 Jun. **Student volunteer**, *PLDI 2020*, Internet.
- duties including hosting zoom meetings and organizing Q&A sessions and Slack channels

2020 Winter **Teaching assistant**, *CPSC 421 Compilers and Interpreters*, Yale University.
- duties including holding office hours and grading

2019 Winter **Teaching assistant**, *EECS 482 Operating Systems*, University of Michigan.
- 250-student upper level technical elective course
- duties including holding office hours and lab teaching

2018 Fall **Teaching assistant**, *EECS 482 Operating Systems*, University of Michigan.
- 250-student upper level technical elective course
- duties including holding office hours and lab teaching

2018 Jul. **Student volunteer**, *DSSS 2018*, Princeton University.
DeepSpec Summer School 2018
- duties including helping VST users

2018 Summer **Research intern**, *DeepSpecDB*, Prof. Andrew Appel, Princeton University.
Design and verification of high performance in-memory database using VST

2016–2017 **Intern**, *Apple Inc.*, Hardware Testing, Shanghai.
- Developed concurrent software systems used for audit and version control of test stations
- Wrote detailed code documents and deployment instructions for the systems to be maintained after leaving

Honors and Awards

2020 **Distinguished Paper Award**, PLDI 2020.
Armada: low-effort verification of high-performance concurrent programs

2019 **First Place Award**, POPL 2019 SRC.
Verification of a Cache-optimized Data Structure

2019 **James B. Angell Scholar**, University of Michigan.

2018 **Dean's List**, University of Michigan.

2018 **University Honors**, University of Michigan.

2017 **Dean's List**, University of Michigan.

2017 **University Honors**, University of Michigan.

Projects

Now **Ph.D. student**, Prof. Zhong Shao, Yale University.
- Developing formal model for weak memory inspired by game semantics and trace theory
- Verifying concurrent operating systems on top of weak memory atomics

2018 Summer **Research intern**, *DeepSpecDB*, Prof. Andrew Appel, Princeton University.
- Verification of high performance in-memory database using VST
- Design and formalization of abstract interface for data structures

2017–2019 **Research assistant**, *Armada*, Prof. Manos Kapritsos, University of Michigan.
- Design of custom programming language supporting concurrency
- Automating proof generation for program transformations
- Verification of MCS Lock implementation using the Armada toolchain

2019 **Capstone Design Project**, *RISC-V Processor*, Prof. Ronald Dreslinski, University of Michigan.
Design and verification of a way-parametrized super-scalar out-of-order RISCV processor with speculation and LSQ support

2018 **Course Project**, *Fault-tolerant distributed chat server*, Prof. Manos Kapritsos.
Design and test of multi-Paxos based chat server and client

Programming Languages

Verification	Coq, Dafny, Armada
Functional	OCaml
Imperative	C, C++, C#
Scripting	Python, Javascript, Shell (and variants)
Others	LaTeX, HTML/CSS, Verilog, Matlab, Mathematica