

John Kloosterman

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Research Interests

Computer science and engineering education, compilers, computer architecture, throughput processor software and hardware architecture

Education

University of Michigan, Ann Arbor, MI

Ph.D. Computer Science and Engineering, 2018; M.S. 2015

Thesis: Data Resource Management in Throughput Processors

Calvin University, Grand Rapids, MI

B.S., Computer Science with honors, Philosophy, 2013

Teaching

EECS 485 (Web Systems): A holistic course of modern web systems and technologies, covering front end and back end. Students build an Instagram clone in the first half of the semester and a Google clone in the second.

Spring 2024 (55 students), Winter 2024 (460 students), Fall 2023 (720 students),
Spring 2023 (34 students), Winter 2023 (480 students), Winter 2022 (480 students),
Winter 2021 (450 students), Winter 2020 (450 students)

EECS 183 (Elementary Programming Concepts): The largest CS1 course at the University of Michigan, taken by CS-LSA and DS-LSA students as well as any students in LSA and other colleges otherwise interested in computing.

Fall 2022 (1230 students), Fall 2021 (1150 students), Fall 2020 (1110 students),
Fall 2019 (1025 students), Winter 2019 (700 students), Fall 2019 (1050 students)

EECS 280 (Programming and Data Structures): the CS2 course at the University of Michigan, taken by all CS and data science majors and minors.

Spring 2020 (180 students), Spring 2019 (130 students), Winter 2017 (950 students)

Workshops Taught

April 2023 Ross School of Business, technical interview preparation seminars for Master of Business Analytics program

Student Projects

2024 Open-Ended CS Course Design in Response to Generative AI Tools
Melina O'Dell

2024 Generative AI usage survey in EECS 485 W24
Lauren Ball, Henry Beckstein, Grenmarie Agresar (CRLT-Engin)

2020-2023 Developing Comprehensive Studies Program programming for EECS 183
Jule Schatz, Nel Escher, Tamara Nelson-Fromm, and others,
in collaboration with UM Foundational Course Initiative

2021-22 Investigating the Opioid Epidemic with Data Science (UROP)
Evani Dalal, Oliver Gao

2018-19 Reducing Machine Learning Cost for Web Applications (UROP)
Dannin Ferrara, Latifur Khan

2019, 2020 Multidisciplinary Design Project (with Ally Financial, Toyota)
Faculty mentor for two year-long student project teams in collaboration with industry

Grants

\$5496 SU24 College of Engineering Enhancing Engineering Education Grant

\$1250 F22 LEO Professional Development Fund

\$1000 F20 LEO Inclusive Teaching Grant for lower-stakes assessment design

\$30K 2019-2022 Foundational Course Initiative support for EECS 183

\$5991 F19 CRLT Faculty Development Fund (co-PI) for developing Lobster online active learning coding tool

\$500 F19 LEO Inclusive Teaching Grant for TA support during active learning exercises

\$1000 W18 CRLT inclusive teaching support

\$1000 F18 UROP Supplemental Funding for undergraduate research

\$1000 F18 LEO Professional Development Fund

\$1925 F18 CRLT Lecturer's Professional Development Fund

Awards

2019-20 Michigan Housing Honored Instructor

2018-19 Michigan Housing Honored Instructor

Seminars/Panels/Workshops

2023-present Foundational Course Initiative Community of Practice
May 2024, May 2023, May 2021, May 2020, June 2019
Preparing Future Faculty conference teaching faculty panel
Aug. 2023, Aug. 2022, Aug. 2021, Aug. 2020, Aug. 2019
Speaker at CS Kickstart workshop
Feb. 2021, Sept. 2022
Computing CARES panelist on remote learning
Dec. 2022 Panelist for LEO inclusive teaching grant program presentation
Nov. 2022 Interviewee on Michigan Daily podcast “So You Want to Be a CS Major?”
2019-22 University of Michigan Foundational Course Initiative (EECS 183)
Course Design Institute May 2019
Nov. 2021 CSE Undergraduate Town Hall panelist
2021-22 Speaker for Comprehensive Studies Program and M-STEM panels on computing
May 2020 CRLT-Engin Symposium on Engineering Teaching and Learning panelist,
“Moving from Emergency to Enhanced Remote Teaching”
May 2019 CRLT: Enriching Scholarship, “Using Analytics to Inform Instruction” panel
on using lecture capture analytics for course design
Dec. 2018 Teaching Engineering (ENGR 580) faculty panel
Fall 2018 CRLT-Engineering Inclusive Teaching circle

Collaborations

2023-present MaCSS Scholars, faculty mentor
2019-2022 Foundational Course Initiative for EECS 183 (with CRLT)
2019-2022 SEISMIC in-lecture backchannels (PI: Perry Samson)

Publications, Talks, Patents

John Kloosterman, Kimberly Diaz, Rose Sherry, “Community-Focused Lab Sections in Large Computer Science Courses”, University of Michigan CoE Engineering Education Innovation Days, May 2024

Jule Schatz, Zahra Makki, Elizabeth Mann Levesque, Heather Rypkema, **John Kloosterman**, “Creating a Community-Focused Lab Section in a Large Computer Science Course”, ASEE General Conference, Minorities in Engineering Division, June 2022

Jule Schatz, Zahra Makki, Elizabeth Mann Levesque, Heather Rypkema, **John Kloosterman**, Poster: “Creating a Community-Focused Lab Section in a Large Computer Science Course”, University of Michigan DEI Mini-Conference, April 2022. **Best Poster Award.**

David Ke Hong, **John Kloosterman**, Yuqi Jin, Yulong Cao, Qi Alfred Chen, Scott Mahlke, Z. Morley Mao, “AVGuardian: Detecting and Mitigating Publish-Subscribe Overprivilege for Autonomous Vehicle Systems”, IEEE European Symposium on Security and Privacy (Euro S&P) 2020 (15% acceptance rate)

John Kloosterman, Jonathan Beaumont, Davoud Anoushe Jamshidi, Jonathan Bailey, Trevor Mudge, Scott Mahlke, “Apparatus and method for processing thread groups”, US patent 15782098, published 3/10/2020

Jonathan Bailey, **John Kloosterman**, Scott Mahlke, “Scratch That (But Cache This): A Hybrid Register Cache / Scratchpad for GPUs”, International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES) 2018 (24% acceptance rate)

John Kloosterman, Jonathan Beaumont, D. Anoushe Jamshidi, Jonathan Bailey, Trevor Mudge, Scott Mahlke, “RegLess: Just-in-Time Operand Staging for GPUs”, International Symposium on Microarchitecture (MICRO) 2017 (19% acceptance rate)

John Kloosterman, Jonathan Beaumont, Michael Wollman, Ankit Sethia, Ron Dreslinski, Trevor Mudge, Scott Mahlke, “WarpPool: Sharing Requests with Inter-Warp Coalescing for Throughput Processors”, International Symposium on Microarchitecture (MICRO) 2015 (22% acceptance rate)

College and Departmental Service

- CRLT-Engin Faculty Advisory Board, 2023-present
- Data Science-Engineering Chief Program Advisor, 2020-present
- Data science program committee, 2020-present (chair Winter 2021)
- Towner Prize for Outstanding GSIs selection committee, 2023-24
- Non-evaluative interviewer for CoE faculty candidates, 2023-present
- Undergraduate Program Advisors Group in Engineering, 2020-present
- CSE Masters’ advising, 2023
- CSE undergraduate advising, 2018-2020
- CSE undergraduates awards committee, 2023-24, 2019-20
- Computer Science program committee, 2018-19

Work Experience

University of Michigan, Lecturer IV, Computer Science and Engineering 2022 – present

University of Michigan, Lecturer III, Computer Science and Engineering 2018 – 2022

- Teach and develop computer science courses and curriculum
- Academic and career advising for undergraduate students
- Mentor graduate and undergraduate teaching assistants

University of Michigan, Research Fellow 2018

- Project: “Security Assurance through Protocol Customization: Novel Program Analysis and Machine Learning based Automation”
- PIs: Scott Mahlke, Z. Morley Mao

Google, Software Engineering Intern 2015

- Designed and implemented a high-performance parallel C++ memory profiling tool used across many Google projects.

External Service

- Reviewer, SIGCSE 2018, 2019, 2020
- Reviewer, ACM Transactions on Architecture and Code Optimization (TACO), 2019
- Research Policy Committee, University of Michigan, 2015-16, 2016-17

Updated: May 2024