Jonah Rosenblum

Computer Science and Engineering jonaher@umich.edu
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Research Interests

I am interested in building low-trust systems that protect data privacy and integrity. I am currently focused on protecting data at rest from ransomware attacks by using time as a defense mechanism. I have also worked on protecting sensitive data in genome analytics using trusted hardware, preventing Rowhammer attacks between VMs via architecture-aware memory allocation, and providing scalable freshness protections via a novel trusted memory design.

Education

University of Michigan Ann Arbor, MI
Ph.D. in Computer Science and Engineering *Sep 2022-Current*
Advisor: Satish Narayanasamy
GPA: 3.99

University of Michigan Ann Arbor, MI
M.S. in Computer Science and Engineering *Jan 2021-Dec 2021*

University of Michigan Ann Arbor, MI
B.S. in Computer Science *Sep 2017-Dec 2020*
GPA: 3.83

Publications

1. Juechu Dong, **Jonah Rosenblum**, Satish Narayanasamy. "*Toleo: Scaling Freshness to Tera-scale Memory using CXL and PIM*." In Architectural Support for Programming Languages and Operating Systems **(ASPLOS)**. 2024.
2. Kevin Loughlin, **Jonah Rosenblum**, Stefan Saroiu, Alec Wolman, Dimitrios Skarlatos, and Baris Kasikci. "*Siloz: Leveraging DRAM Isolation Domains to Prevent Inter-VM Rowhammer*." In Symposium on Operating Systems Principles **(SOSP)**. 2023.

Under Submission

1. **Jonah Rosenblum**, Juechu Dong, Peter Chen, Satish Narayanasamy. "Timelocked Storage for Ransomware Defense." Under submission in **ASPLOS** 2025
2. **Jonah Rosenblum**, Juechu Dong, Satish Narayanasamy. "*SECRET-GWAS: Confidential Computing for Population-Scale GWAS*." Under editorial review in **Nature Comp. Sci.**

Employment

Google

Software Engineering Intern *May-August 2021*

Team: GCloud Infrastructure

Analyzed inversion between network and application priority for high-priority Google traffic across all clusters and identified strategies to align less latency sensitive traffic with appropriate QoS.

Google

Software Engineering Intern *May-August 2020*

Team: Cloud Trace

Worked on open-source telemetry tool OpenTelemetry, implementing graceful shutdown for processes to ensure all traces and metrics are exported.

Software Artifacts

Siloz

github.com/efeslab/siloz

Extension to the Linux/KVM hypervisor to prevent inter-VM Rowhammer attacks.

SECRET-GWAS

https://github.com/jonahrosenblum/SECRET-GWAS

Massively parallel privacy-respecting system to collaboratively study genomics and health.

Teaching

Parallel Computer Architecture (EECS 570) Ann Arbor, MI

Graduate Student Instructor for Prof. Ronald Dreslinski. *Jan-May 2024*

(Overall, Jonah Rosenblum was an excellent teacher Q2) - 4.8/5 (5: Strongly Agree; 1 Strong Disagree)

Advanced Operating Systems (EECS 582) Ann Arbor, MI

Graduate Student Instructor for Prof. Ryan Huang. *Sep-Dec 2023*

(Overall, Jonah Rosenblum was an excellent teacher Q2 - 4.8/5 (5: Strongly Agree; 1 Strong Disagree)

One of 3 out of 400+ student instructors to receive "Outstanding GSI Award"

Parallel Computer Architecture (EECS 570) Ann Arbor, MI

Graduate Student Instructor for Prof. Satish Narayanasamy. *Jan-May 2021*

(Overall, Jonah Rosenblum was an excellent teacher Q2) - 4.8/5 (5: Strongly Agree; 1 Strong Disagree)

Professional Activities

CSEG Security Reading Group Co-Chair Ann Arbor, MI

Run weekly security group meetings to discuss current research papers. *Jan 2023-Current*

Student Applicant Support Program Volunteer Ann Arbor, MI

Provide prospective Ph.D. students with advice and feedback on applications. *Oct 2023-Current*

Grad Mentor Program Volunteer Ann Arbor, MI

Research/grad program mentor to Master's and Ph.D. students. *Sep 2023-Current*

Technical Skills

Programming Languages: Proficient in C, C++, and Python. Familiar with many other object-oriented languages.

Other skills: Kernel development (QEMU/Linux), formal verification (Dafny/Hoare logic)