

# Nicholas Gordon

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Born: April 30, 1994—Memphis, Tennessee

Nationality: American

## Research Interests

My primary research interests are operating systems and system software, in the contexts of trusted and performance-oriented systems. Currently I'm investigating secure hardware capabilities to better utilize hardware resources in distributed, trusted environments, including secure data acquisition for sensor-enabled IoT platforms. I have also worked on hardware virtualization to improve resource utilization and flexibility in HPC systems. Further, I have worked on operating system design on non-x86 architectures, including ARM and RISC-V.

## Education

- 2018-Now *PhD Candidate, expected graduation spring 2024*, Department of Computer Science, University of Pittsburgh  
Advisor: Dr. John “Jack” Lange, Oak Ridge National Laboratory
- 2016 *BSc in Computer Science, Mathematics*, University of Memphis

## Areas of specialization

High-performance Computing; Hardware Trust and Trusted Computing; Operating System Design; Isolation and Virtualization

## Positions held

- 2022 Intern, Computer Science Research Institute, Sandia National Laboratories  
CSRI Summer Intern. Mentor: Kevin Pedretti. Manager: Ron Brightwell.  
Ported and improved the Kitten operating system for cutting-edge RISC-V hardware

in pursuit of hardware/software co-design.

- 2016-2018 Research Engineer, University of Memphis. Advisor: Dr. Lan Wang  
Developed network software including routing programs and network applications for named-data networking (NDN) research project. Contributor to the DARPA SHARE project and additionally responsible for DARPA-compliant local infrastructure.
- 2016 Student researcher, University of Memphis. Advisor: Dr. Lan Wang

## Publications & talks

### CONFERENCE PUBLICATIONS AND PRESENTATIONS

- 2023 *Invited Poster* – “Porting the Kitten Lightweight Kernel Operating System to RISC-V”, at *Salishan Conference on High Speed Computing, 2023*
- 2022 Gordon, Nicholas, Pedretti, Kevin, Lange, John, “Porting the Kitten Lightweight Kernel Operating System to RISC-V”, *Runtimes and Operating Systems for Supercomputers 22 & Sandia CSRI Proceedings*
- 2022 Lange, John, Gordon, Nicholas, Gaines, Brian L., “Low Overhead Security Isolation using Lightweight Kernels and TEEs”, *Runtimes and Operating Systems for Supercomputers 21*
- 2022 Gordon, Nicholas, Lange, John (2022), “Lifting and Dropping VMs to Dynamically Transition Between Time- and Space-sharing for Large-Scale HPC Systems”, *High Performance and Distributed Computing 2022*
- 2021 Gordon, Nicholas, Lange, John (2021), “Covirt: Lightweight Fault Isolation and Resource Protection for Co-Kernels”, *International Parallel & Distributed Processing Symposium IPDPS 2021*
- 2018 D Coomes, A Gawande, N Gordon, L Wang (2018), “Android multimedia sharing application over NDN”, *Information-Centric Networking 18*

### OTHER WORKS

- 2020 N Gordon (2020), “A Survey of Blockchain Storage Requirement Mitigation Techniques”
- 2017 V Lehman, M Chowdhury, N Gordon, A Gawande (2017), “NLSR Developer’s Guide”

## Teaching

- 2019 Algorithm Design and Implementation, Recitation as Teaching Assistant, University of Pittsburgh

## Service to the profession

2020 Transactions on Parallel and Distributed Systems (TPDS), Ad Hoc Reviewer

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