

# KYLE C. HALE

February 23, 2026

## PERSONAL INFORMATION

<i>email</i>	<a href="mailto:kyle.hale@oregonstate.edu">kyle.hale@oregonstate.edu</a>
<i>website</i>	<a href="https://halek.co">https://halek.co</a>
<i>phone</i>	+1 (361) 563 4196
<i>address</i>	School of EECS College of Engineering Oregon State University 2027 Kelley Engineering Center 2500 NW Monroe Ave. Corvallis, OR 97331

## RESEARCH INTERESTS

Unconventional and experimental computer systems, especially relating to operating systems, parallel computing, high-performance computing, distributed systems, resource virtualization, computer architecture, and network and software security.

## EDUCATION

*Ph.D. in Computer Science*

*August 2016* Northwestern University  
Department of Electrical Engineering and Computer Science  
Thesis: *Hybrid Runtime Systems*  
Advisor: Prof. Peter A. DINDA

*M.S. in Computer Science*

*March 2013* Northwestern University  
Department of Electrical Engineering and Computer Science

*B.S. in Computer Science*

*May 2010* The University of Texas at Austin  
Department of Computer Science  
Honors Thesis: *Segment Gating for Static Energy Reduction with Introspective Networks-on-Chip*  
Advisor: Prof. Stephen W. KECKLER

*Sept. 2007* Sophia University, Tokyo, Japan  
Intensive Japanese Language Program

## EMPLOYMENT

<i>Oregon State University</i>	Faculty in the School of Electrical Engineering and Computer Science at Oregon State University.
	<i>2024–Present</i> Associate Professor, OREGON STATE UNIVERSITY, School of EECS Corvallis, OR
<i>Illinois Institute of Technology</i>	Faculty at Illinois Tech Department of Computer Science.
	<i>2023–2024</i> Associate Professor, ILLINOIS INSTITUTE OF TECHNOLOGY, Department of Computer Science Chicago, IL
	<i>2016–2023</i> Assistant Professor, ILLINOIS INSTITUTE OF TECHNOLOGY, Department of Computer Science Chicago, IL
<i>Northwestern University</i>	Conducted research in unconventional and experimental computer systems, with an emphasis on operating systems and high-performance computing.
	<i>2010–2016</i> Ph.D. Student, NORTHWESTERN UNIVERSITY Department of Electrical Engineering and Computer Science Evanston, IL
	<i>Summer 2013</i> Research Intern, VMWARE, INC. Proactive Distributed Resource Management Team Palo Alto, CA
<i>VMWare, Inc.</i>	Investigated the ability to leverage application communication patterns in parallel codes to implement proactive resiliency in a virtualized environment (particularly for VMWare vSphere).
	<i>Summer 2012</i> Technical Computing Intern, FUJITSU LTD. Technical Computing Solutions Unit Chiba, Japan
<i>Fujitsu Ltd.</i>	Tested, packaged, and installed the Fujitsu cross-compiler toolkit for the PRIMEHPC FX10 Supercomputer on access nodes. Developed test-suite of hybrid parallel applications (MPI/OpenMP/FFTW) aimed at customers developing cross-compiled programs for the PRIMEHPC FX10.
	<i>Summer 2012</i> Graduate Technical Research Intern, SANDIA LABS Scalable Systems Software Unit Albuquerque, NM
<i>Sandia National Laboratories</i>	Ported the Palacios Virtual Machine Monitor to the Cray XK6. Developed a novel, RDMA-based high-performance networking component within the Palacios VMM to mitigate network virtualization overhead in HPC applications.

## PUBLICATIONS

### *Journal Papers*

- TPDS 09/2022*      B. Tauro, C. Liu, and **K.C. Hale**. Modeling Speedup in Multi-OS Environments. *IEEE Transactions on Parallel and Distributed Systems*, Vol. 33, No. 6, September, 2022, pp. 1436-1450.
- Refereed Conference and Workshop Papers*
- IPDPS 2026*      X. Yang and **K.C. Hale**. Shipyard: A Multi-Leader Consensus Protocol with Auto-Balanced Leadership of the Sharded Keyspace. *Proceedings of the 40<sup>th</sup> IEEE International Parallel Distributed Processing Symposium*, May, 2026.
- MEMO 2025*      B. tauro, I. Dougherty, and **K.C. Hale**. CaRDS: Compiler-aided Remote Data Structures. *Proceedings of the SC '25 Workshops of the International Conference for High Performance Computing, Networking, Storage and Analysis*, November, 2025.
- ISPDC 2025*      X. Yang and **K.C. Hale**. CoPPar Tree: Fast and Composable Consistency at Global Scale. *Proceedings of the 24<sup>th</sup> IEEE International Symposium on Parallel and Distributed Computing*, July, 2025.
- ASPLOS 2024*      B. Tauro, B. Suchy, S. Campanoni, P. Dinda, **K.C. Hale**. TrackFM: Far-out Compiler Support for a Far Memory World. *Proceedings of the 29<sup>th</sup> ACM International Conference on Architectural Support for Programming Languages and Operating Systems*, April, 2024.
- EuroSys 2022*      N.C. Wanninger, J.J. Bowden, K. Shetty, A. Garg, and **K.C. Hale**. Isolating Functions at the Hardware Limit with Virtines. *Proceedings of the 17<sup>th</sup> European Conference on Computer Systems*, April, 2022. **Best Artifact Award winner**.
- Middleware 2022*      E. Romero-Gainza, C. Stewart, A. Li, **K.C. Hale**, N. Morris. Bolt: Fast Inference for Random Forests. *Proceedings of the 23<sup>rd</sup> ACM/IFIP International Middleware Conference*, to appear.
- ROSS 2021*      **K.C. Hale**, S. Campanoni, N. Hardavellas, P. Dinda. The Case for an Interwoven Hardware/Software Stack. *Proceedings of the 10<sup>th</sup> International Workshop on Runtime and Operating Systems for Supercomputers*, November, 2021.
- MASCOTS 2021*      P. Nookala, P. Dinda, **K.C. Hale**, I. Raicu, and K. Chard. Extremely Fine-grained Parallelism via Scalable Concurrent Queues on Modern Many-core Architectures. *Proceedings of the 28<sup>th</sup> IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*, November, 2021.
- SC 2021*      J. Ma, W. Wang, A. Nelson, M. Cuevas, B. Homerding, C. Liu, Z. Huang, S. Campanoni, **K.C. Hale**, and P. Dinda. Paths to OpenMP in the Kernel. *Proceedings of the International Conference for High Performance Computing, Networking, Storage, and Analysis*, November, 2021.
- APSys 2021*      **K.C. Hale**. Coalescent Computing. *Proceedings of the 12<sup>th</sup> ACM SIGOPS Asia-Pacific Workshop on Systems*, August, 2021.
- PDADS 2021*      E. Romero-Gainza, C. Stewart, A. Li, **K.C. Hale**, N. Morris. Memory Mapping and Parallelizing Random Forests for Speed and Cache Efficiency. *Proceedings of the 1<sup>st</sup> International Workshop on Parallel and Distributed Algorithms for Decision Sciences (co-located with ICPP '21)*, August, 2021.
- DaMoN 2021*      Q. Zeng, **K.C. Hale**, and B. Glavic. Playing Fetch with CAT - Composing Cache Partitioning and Prefetching for Task-based Query Processing. *Proceedings of the 17<sup>th</sup> International Workshop on Data Management on New Hardware*, June, 2021.

- PLDI 2021* M. Rainey, R.R. Newton, **K.C. Hale**, N. Hardavellas, S. Campanoni, P. Dinda, and U.A. Acar. Task Parallel Assembly Language for Uncompromising Parallelism. *Proceedings of the 42<sup>nd</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation*, June, 2021.
- MASCOTS 2019* B. Tauro, C. Liu, and **K.C. Hale**. Modeling Speedup in Multi-OS Environments. *Proceedings of the 27<sup>th</sup> IEEE International Conference on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*, October, 2019.
- MASCOTS 2019* C. Hetland, G. Tziantzioulis, B. Suchy, **K.C. Hale**, N. Hardavellas, and P. Dinda. Prospects for Functional Address Translation. *Proceedings of the 27<sup>th</sup> IEEE International Conference on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*, October, 2019.
- ROSS 2019* C. Liu and **K.C. Hale**. Towards a Practical Ecosystem for Specialized Operating Systems. *Proceedings of the 9<sup>th</sup> International Workshop on Runtime and Operating Systems for Supercomputers*, June, 2019.
- MASCOTS 2018* **K.C. Hale** and P. Dinda. An Evaluation of Asynchronous Software Events on Modern Hardware. *Proceedings of the 26<sup>th</sup> IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*, September, 2018.
- ICAC 2017* **K.C. Hale**, C. Hetland, and P. Dinda. Multiverse: Easy Conversion of Runtime Systems into OS Kernels via Automatic Hybridization. *Proceedings of the 14<sup>th</sup> International Conference on Autonomic Computing*, July, 2017.
- HPDC 2016* **K.C. Hale**, C. Hetland, and P. Dinda. Automatic Hybridization of Runtime Systems. *Proceedings of the 25<sup>th</sup> International ACM Symposium on High-performance Parallel and Distributed Computing*, June, 2016.
- VEE 2016* **K.C. Hale** and P. Dinda. Enabling Hybrid Parallel Runtimes Through Kernel and Virtualization Support. *Proceedings of the 12<sup>th</sup> ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments*, April, 2016.
- HPDC 2015* **K.C. Hale** and P. Dinda. A Case for Transforming Parallel Runtimes into Operating System Kernels. *Proceedings of the 24<sup>th</sup> International ACM Symposium on High-performance Parallel and Distributed Computing*, June, 2015.
- ROSS 2014* M. Swiech, **K.C. Hale**, and P. Dinda. VMM Emulation of Intel Hardware Transactional Memory. *Proceedings of the 4<sup>th</sup> International Workshop on Runtime and Operating Systems for Supercomputers*, June, 2014.
- HPDC 2014* L. Xia, **K.C. Hale**, and P. Dinda. ConCORD: Easily Exploiting Memory Content Redundancy Through the Content-aware Service Command. *Proceedings of the 23<sup>rd</sup> ACM Symposium on High-performance Parallel and Distributed Computing*, June, 2014.
- ICAC 2014* **K.C. Hale** and P. Dinda. Guarded Modules: Adaptively Extending the VMM's Privilege Into the Guest. *Proceedings of the 11<sup>th</sup> International Conference on Autonomic Computing*, June, 2014.
- ICAC 2012* **K.C. Hale**, L. Xia, and P. Dinda. Shifting GEARS to Enable Guest-context Virtual Services. *Proceedings of the 9<sup>th</sup> International Conference on Autonomic Computing*, September, 2012.
- NoCArc 2009* **K.C. Hale**, B. Grot, and S. Keckler. Segment Gating for Static Energy Reduction

in Networks-On-Chip. *Proceedings of the 2<sup>nd</sup> International Workshop on Network-on-Chip Architectures*, December, 2009.

### *Non-overlapping Technical Reports and Preprints*

- arXiv preprint* A. Rizvi, **K.C. Hale**. A Look at Communication-Intensive Performance in Julia. Preprint, arXiv:2109.14072, September, 2021.
- October 2019* A. Rizvi and **K.C. Hale**. Evaluating Julia as a Vehicle for High-Performance Parallel Runtime Construction. Technical Report IIT-CS-OS-19-01, Department of Computer Science, IIT, October, 2019.
- April 2014* **K.C. Hale** and P. Dinda. Details of the Case for Transforming Parallel Runtimes into Operating System Kernels. Technical Report NU-EECS-15-01, Department of Electrical Engineering and Computer Science, Northwestern University, April, 2014.
- November 2011* J. Lange, P. Dinda, **K.C. Hale**, and L. Xia. An Introduction to the Palacios Virtual Machine Monitor—Version 1.3. Technical Report NU-EECS11-10, Department of Electrical Engineering and Computer Science, Northwestern University, November, 2011.

### INVITED TALKS

- Sandia CCR 2022* Interweaving the Hardware/Software Stack. Invited talk at Sandia Labs, Center for Computing Research Seminar, April, 2022.
- Argone/IIT Seminar 2022* Virtualization at the Edge. Invited talk at Argonne/IIT Seminar Series, April, 2022.
- DePaul 2019* An Overview of Datacenter Virtualization. Invited talk at DePaul University virtualization seminar, June, 2019.
- GCASR 2017* Hybrid Runtimes, or How I Learned to Stop Worrying and Become the Kernel. Invited talk at the 6<sup>th</sup> Greater Chicago Area Systems Research Workshop, April, 2017.
- ROSS 2016* Accelerating Asynchronous Events for Hybrid Parallel Runtimes. Invited talk at the 6<sup>th</sup> International Workshop on Runtime and Operating Systems for Supercomputers, June, 2016.

### *Posters*

- SC 2023* J. Kerney , **K. C. Hale**, V. Hayot-Sasson, K. Chard. Supercharging Scientific Serverless: Slashing Cold Starts with Python Unikernels. Poster at the International Conference for High Performance Computing, Networking, Storage, and Analysis, November, 2023.
- GCASR 2023* N. Velugoti, **K. C. Hale**, J. Manzano, and N. Tallent. Predicting and Alleviating Bottlenecks in Hybrid CPU and Memory Architectures. Poster at the the 9<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop, April, 2023.
- GCASR 2023* X. Yang and **K. C. Hale**. CoPPar Tree: Fast and Composable Consistency at Global Scale. Poster at the the 9<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop, April, 2023.
- GCASR 2023* B. Tauro, B. Suchy, S. Campanoni, P. Dinda, and **K. C. Hale**. TrackFM: Far-out

- Compiler Support for a Far Memory World. Poster at the *the 9<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2023.
- GCASR 2019* P. Nookala, P. Dinda, **K.C. Hale** and I. Raicu. XQueue: Extreme Fine-grained Concurrent Lock-less Queue. Poster at *the 8<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, May, 2019.
- GCASR 2019* B. Tauro, C. Liu, and **K.C. Hale**. Modeling Speedup in Multi-OS Environments. Poster at *the 8<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, May, 2019.
- GCASR 2018* A. Rizvi, **K.C. Hale**. Evaluating Julia as a Vehicle for High-performance Parallel Runtime Construction. Poster at *the 7<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2018.
- GCASR 2017* P. Nookala, I. Raicu, P. Dinda, and **K.C. Hale**. Performance Analysis of Queue-based Data Structures. Poster at *the 6<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2017.
- GCASR 2016* **K.C. Hale** and P. Dinda. Multiverse: Automatic Hybridization of Parallel Runtime Systems. At *the 5<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2016.
- HPDC 2015* **K.C. Hale** and P. Dinda. A Case for Transforming Parallel Runtimes into Operating System Kernels. At *the 23<sup>rd</sup> ACM Symposium on High-performance Parallel and Distributed Computing*, June, 2015.
- GCASR 2015* G. Tziantzioulis, **K.C. Hale**, B. Pashaj, N. Hardavellas, and P. Dinda. SeaFire: Specialized Computing on Dark Silicon with Heterogeneous Hardware Multi-Pipelining. At *the 4<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2015.
- GCASR 2015* **K.C. Hale** and P. Dinda. A Case for Transforming Parallel Runtimes into Operating System Kernels. At *the 4<sup>th</sup> Annual Greater Chicago Area Systems Research Workshop*, April, 2015.
- GCASR 2014* **K.C. Hale** and P. Dinda. Guarded Modules: Adaptively Extending the VMM's Privilege Into the Guest. At *the 3<sup>rd</sup> Annual Greater Chicago Area Systems Research Workshop*, May, 2014.
- February 2013* **K.C. Hale**. Dynamic Linking Considered Harmful. Talk given at the NU Computer Systems Reading Group, February, 2013.
- ICAC 2012* **K.C. Hale**, L. Xia, and P. Dinda. Shifting GEARS to Enable Guest-context Virtual Services. At *the 9<sup>th</sup> ACM International Conference on Autonomic Computing*, September, 2012.

#### RESEARCH FUNDING

- Intel* “Visualizing Defects and Dopants in Three-Dimensions using Ptychography and Physics-Informed Machine Learning,” \$22,192 (\$200K collaborative total), November 2025 through November 2026, **Co-PI**. This project is in collaboration with Kayla Nguyen, Allen D. Malony, and Thanh Nguyen at the University of Oregon.
- NSF CSR Medium* “Collaborative Research: CSR: Medium: Towards A Unified Memory-centric Computing System with Cross-layer Support,” NSF CNS 2310422, \$886,226

(\$1M collaborative total), October 2023 through September 2026, **Co-PI**. This project is in collaboration with Rujia Wang (lead PI) and Xian-He Sun at IIT, and Peng Jiang at the University of Iowa.

*Samsung*

One-time research gift, February 2023.

*NSF CAREER*

“Colony: A Framework for Bespoke Virtual Execution Contexts,” NSF CNS 2239757, \$632,214, May 2023 though April 2028, **PI**.

*NSF REU Site*

“Collaborative Research: REU Site: BigDataX: From theory to practice in Big Data computing at eXtreme scales,” NSF CNS 2150500, \$362,878 (\$404K collaborative total), July 2022 through June 2025, **Co-PI**. This project is in collaboration with Ioan Raicu at IIT (lead PI) and Kyle Chard (PI) at the University of Chicago.

*NSF PPoSS Planning II*

“Collaborative Research: PPoSS: Planning: Towards an Integrated, Full-stack System for Memory-centric Computing,” NSF CCF 2029014, \$185,473 (\$250K collaborative total), January 2021 through December 2021, Co-PI. This project is in collaboration with Rujia Wang (lead PI) and Xian-He Sun at IIT and Peng Jiang at the University of Iowa.

*NSF PPoSS Planning*

“Collaborative Research: PPoSS: Planning: Unifying Software and Hardware to Achieve Performant and Scalable Zero-cost Parallelism in the Heterogeneous Future,” NSF CCF 2028958, \$41,627 (\$250K collaborative total), October 2020 through September 2021, Principal Investigator. This project is in collaboration with Peter Dinda, Nikos Hardavellas, and Simone Campanoni at Northwestern University and Umut Acar at Carnegie Mellon University.

*NSF CSR Medium*

“CSR: Medium: Collaborative Research: Interweaving the Parallel Software/Hardware Stack,” NSF CNS 1763612, \$305,578 (\$1.2M collaborative total), September 2018 through August 2021, Principal Investigator. This project is in collaboration with Peter Dinda, Nikos Hardavellas, and Simone Campanoni at Northwestern University.

*NSF REU Site*

“REU Site: Collaborative Research: BigDataX: From theory to practice in Big Data computing at eXtreme scales,” NSF CNS 1757964, \$325,000, March 2018 through February 2021, Co-PI. This project is in collaboration with Ioan Raicu at IIT (lead PI) and Kyle Chard at the University of Chicago.

*Intel Hardware Grant*

“Exploring the Integration of FPGA-based Reconfigurable Hardware with Specialized OS Environments,” Intel Hardware Accelerator Research Program (HARP), May, 2017, prototype hardware access. Principal Investigator (in collaboration with Peter Dinda, Northwestern University).

*NSF CRI II-NEW*

“CRI: II-NEW: MYSTIC: prograMmable sYstems reSearch Testbed to explore a stack-wIde adaptive system fabriC,” NSF CNS 1730689, \$1,000,000, July 2017 through June 2020, Co-PI. This project is in collaboration with Ioan Raicu (lead PI) and Xian-He Sun at IIT.

*NSF CSR Small*

“CSR: Small: Collaborative Research: Flexible Resource Management and Coordination Schemes for Lightweight, Rapidly Deployable OS/Rs,” NSF CNS 1718252, \$249,771 (\$500K collaborative total), August 2017 through July 2020, Principal Investigator. This project is in collaboration with Jack Lange at the University of Pittsburgh.

## AWARDS AND HONORS

2023 · NSF CAREER Award

2023 · Excellence in Research Award · IIT College of Computing

2022 · Giles Muller Best Artifact Award · EuroSys '22

2021 · Excellence in Teaching Award · IIT College of Computing

2020 · Teacher of the Year · IIT CS Department

2017 · Best Computer Science PhD Dissertation Award · Northwestern University EECS Department

2016 · Invitee, *the 6<sup>th</sup> International Workshop on Runtime and Operating Systems for Supercomputers (ROSS)*, June, 2016.

2015 · Best Short Presentation Award · *A Case for Transforming Parallel Runtimes into Operating System Kernels* · HPDC 2015

2010-2011 · Murphy Graduate Fellowship Recipient (Northwestern University)

2005-2010 · Member of Turing Scholars Honors Computer Science Degree Program (UT Austin)

2008-2010 · Member of Ronald E. McNair Post-Baccalaureate Achievement Program (UT Austin)

## TEACHING AND ADVISING

### *Current Ph.D. Students*

- **Nanda Velugoti**, 4<sup>th</sup> year
- **Xincheng Yang**, 6<sup>th</sup> year

### *Graduated Ph.D. Students*

- **Brian R. Tauro**, Ph.D. 2024 (first employment: Intuitive)

### *Masters Students Advised*

- Feng-Shih Cheng (MEng;OSU), QEMU-based AI accelerator emulation
- Eugene Cohen (MS;OSU), high-frequency telemetry for architectural simulation
- Conghao Liu, specialized software stacks for virtualization
- MD Ali, worst-case execution time analysis for coalescent computing
- Ayush Garg, Serverless applications of virtines

- Kirtankumar Shetty, Serverless applications of virtines
- Nithin Rao, Disaggregated memory and remote paging
- Florentin Bekier, System design for computer-vision based parking assistance; now software developer at Infomaniak Network SA
- Ganesh Mahesh, Measuring address space dynamics; now software developer at YottaDB
- Piyush Nath, Nautilus InfiniBand driver; now software engineer at EMC Insurance
- Goutham Kannan, Lua in Nautilus kernel; now software engineer at MX Technologies
- Imran Ali-Usmani, Lua in Nautilus kernel; now software engineer at Argonne National Laboratory
- Suraj Chafle, Dune threads in Nautilus; now senior software engineer at CrowdStrike

*Undergraduate Students Advised*

- Ian Dougherty (Spring '24) Compiler-directed prefetching for disaggregated memory; now PhD student at UBC
- Jamison Kerney (REU + AY '24) Virtines + funcX integration; **ACM Student Research Competition Winner @ SC '23**; now PhD student at UC Berkeley
- Devyn Keeney (REU, Summer '21) Rust port of virtines; now Systems Engineer at Epsilon
- Karl Hallsby (REU, Summer '21) Hardware accelerator design for virtines; now PhD student at Northwestern University
- Isabel Raymundo (REU, Summer '21) Coalescent Computing with AR/VR and cloud offloading
- Alexandra Suarez (BigDataX REU, Summer '21) Wifi6 latency measurement
- Akhil Kodomuri (BigDataX REU, Summer '21) Coalescent Computing with LegoOS and GiantVM
- Safa Slote (Fall '20) Floating point in Nautilus Aerokernel
- Trevor Pritchett (Summer '20) Address space dynamics

- Josh Bowden (Spring '20) Language abstractions for virtualized co-routines. Founder and lead software engineer at Domination Finance.
- Nicholas Wanninger (REU, AY '19, AY '20, AY '21) Virtualized functions; now PhD student at Northwestern University.
- Iris Uwizeyimana (Summer '19) AI-accelerated hearing aid architecture; now PhD student at University of Toronto.
- Justin Orr (Summer '19) Multiverse and HVM; now software engineer at Future Velo LLC.
- Andrew Neth (Summer '19) Multiverse and HVM
- Justin Goodman (BigDataX REU, Summer '19) Address space dynamics
- Hussain Khajanchi (BigDataX REU, Summer '19) AI-accelerated hearing aid architecture; now at Ampere Computing
- Gyucheon (Jake) Heo (Summer '19) Investigating new OS abstractions for high-performance I/O
- Samuel Grayson (BigDataX REU, Summer '18) building a customized kernel for high-performance data processing; now PhD student at UIUC
- Jagruti Depan (BigDataX REU, Summer '18) FPGA-based implementation of network science algorithms
- Lucas Myers (Summer '18) development of NES emulator for CS 562 class; now PhD student at Northwestern University
- Josué Rodríguez Nieves (BigDataX REU, Summer '17) programmable on-chip network architectures; now PhD student at Florida International University and NSF GRFP fellow.
- Zachary McKee (Summer '17) development of CFG language generation system

#### *Courses Created*

- CS 562 - Virtual Machines; first taught F17
- CS 595-03 - OS and Runtime System Design for Supercomputing; first taught F16
- CSP 544 - System and Network Security; first taught S20
- CS 450 - Operating Systems (course redesign); first taught S19

- CS 595-01 - Advanced Topics in Serverless and Edge Computing; first taught F21
- CS 492 - Introduction to computer science research; first taught F22
- CS 4/599 - Modern Memory Systems; first taught W25

*PhD Committees (OSU/IIT CS)*

- Mingze Xia, OSU (Advisor: Xin Liang)
- Xiaoyang Lu (Advisor: Xian-He Sun)
- Alexandru Orhean (Advisor: Ioan Raicu)
- Boyang Li (Advisor: Zhiling Lan)
- Yao Kang (Advisor: Zhiling Lan)
- Poornima Nookala (Advisor: Ioan Raicu)
- Xiaoliang Wu (Advisor: Dong (Kevin) Jin)
- Xin Wang (Advisor: Zhiling Lan)
- Hariharan Devarajan (Advisor: Xian-He Sun)
- Anthony Kougkas (Advisor: Xian-He Sun)
- Christopher Hannon (Advisor: Dong (Kevin) Jin)
- Baharet Sadat Arab (Advisor: Boris Glavic)
- Seokki Lee (Advisor: Boris Glavic)

*PhD Committees (External)*

- Eduardo Romero-Gainza (Ohio State CS; Advisor: Christopher Stewart)
- Panitan Wongse-ammat (Northwestern CS; Advisor: Russ Joseph)
- Maral Mesmakhosroshahi (IIT ECE; Advisor: Joohee Kim)

*Miscellaneous*

TA for Introduction to Databases (Northwestern EECS 339)

TA for Introduction to Computer Systems (Northwestern EECS 213), 2 quarters

Designed a new parallel computing lab called SETI Lab for the Northwestern Introduction to Computer Systems (EECS 213) course. Students are tasked with parallelizing signal analysis in the search for synthetic “alien” signals.

**Co-advised masters student Shiva Rao**

Topic: Feasibility of Making DVFS Decisions in the VMM  
Now Senior Software Engineer at Altera

**Co-advised masters student Madhav Suresh**

Topic: Parallel language synchronization techniques; Deterministic and stochastic barrier synchronization

**Guided and assisted undergraduate students in independent study projects:**

Conor Hetland & Jonathan Ford

Topic: Prototype port of the Nautilus AeroKernel to the Intel Xeon Phi

Akhil Guliani, Billy Gross, and Panitan Wongse-ammat

Topic: Device file virtualization in the Palacios VMM

**SERVICE TO DISCIPLINE**

*Technical Program Committee Memberships*

EuroSys 2027

ICS 2025

RESDIS 2024, 2025

ICPP 2024

HPDC 2024, 2026

HCDS 2024, 2025, 2026

USENIX ATC 2023, 2025

ROSS 2022, 2023

MTSA 2023

COMPSYS 2022

ICDCS 2021, 2022

IPDPS 2020, 2021, 2022, 2023, 2024

ICCD 2019

MASCOTS 2019

VIRT 2018, 2019, 2020

MCHPC 2018, 2019, 2020, 2021, 2022

SC 2018

VHPC 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024

FiCloud 2016

CloudCom 2016, 2017, 2018, 2019, 2020

ICS 2017 (External Review Committee)

Local Chair, ICS 2017

Local Chair, GCASR 2023

Organizer, MEMO 2024, 2025

### *External Reviewing*

DATE 2012

ISPASS 2012, 2017

HPDC 2012, 2013, 2014, 2015

SC 2012, 2016

ICAC 2013

ICDCS 2015

OOPSLA 2016

HPCA 2017

CGO 2017

### *Journal Reviewing*

Journal of Supercomputing (2024)

ACM Transactions on Storage (2023)

JPDC (2019)

CCPE (2018)

SPE (2018, 2019)

TPDS (2016, 2018, 2021)

Parallel Computing (2014)

### *Miscellaneous*

Member of ACM (SIGARCH, SIGOPS, SIGHPC)

### **SERVICE TO INSTITUTION**

(OSU) Promotion and Tenure Committee, AY2025-2026

(OSU) Quality Teaching Committee, AY2024-2025

PhD Experience and Recruitment Committee Chair, AY2023-2024

CS Department Website Coordinator, Spring 2023

CS Department PhD Coordinator, Spring 2021

IIT CS Department committees: undergraduate studies, graduate admissions, faculty search, ad hoc TA selection, BPC working group

Helped lead creation of CS Honors Research degree program

Faculty advisor for Computer Science Graduate Student Association

Served as a round table discussion leader for Camras Scholars selection process (F'20)

#### OTHER INFORMATION

##### *Languages*

ENGLISH · Native

JAPANESE · Advanced (conversationally fluent, reading and writing)

SPANISH · Basic (simple words and phrases only)

#### REFERENCES

Available upon request.