
EDUCATION

- Ph.D. in Computer and Information Sciences** 2012
University of Delaware, Newark, DE, USA
Thesis: Improving WAN Performance with the eXtensible Session Protocol: A Protocol for Future Internet Architectures
Advisor: Prof. Martin Swany
- M.S. in Computer and Information Sciences** 2007
University of Delaware, Newark, DE, USA
- B.S. (Honors) in Computer and Information Sciences** 2003
University of Delaware, Newark, DE, USA

EXPERIENCE

- Assistant Scientist** 2015 - present
Intelligent Systems Engineering, Indiana University, Bloomington, IN
School of Informatics, Computing, and Engineering
- Principal Software Research Engineer** 2012 - 2015
School of Informatics and Computing, Indiana University, Bloomington, IN
Center for Research in Extreme Scale Computing (CREST)
- Graduate Research Assistant** 2008 - 2012
School of Informatics and Computing, University of Delaware, Newark, DE
- Network Consultant** (summers) 2008 - 2010
Internet2, Ann Arbor, MI
- Graduate Research Assistant** 2006 - 2008
School of Informatics and Computing, University of Delaware, Newark, DE
Department of Electrical Engineering
- Research Assistant** 2002 - 2003
CIS/NLP Lab, University of Delaware, Newark, DE

SELECTED PUBLICATIONS

1. L.R.B. Brasilino, A. Shroyer, N. Marri, S. Agrawal, C. Pilachowski, **E. Kissel**, M. Swany, "Data Distillation at the Network's Edge: Exposing Programmable Logic with InLocus". In IEEE International Conference on Edge Computing (EDGE 2018), July, 2018.
2. O. Arap, L. R. B. Brasilino, **E. Kissel**, A. Shroyer and M. Swany, "Offloading Collective Operations to Programmable Logic," in IEEE Micro, vol. 37, no. 5, pp. 52-60, September/October 2017.
3. S. McKee, **E. Kissel**, B. Meekhof, M. Swany, C. Miller, M. Gregorowicz. "OSiRIS: A Distributed Ceph Deployment using Software Defined Networking for Multi-institutional Research." In Journal of Physics: Conference Series. 898(6):062045, 2017.
4. Kulkarni, L. Dalessandro, **E. Kissel**, A. Lumsdaine, T. L. Sterling, M. Swany: "Network-Managed Virtual Global Address Space for Message-driven Runtimes." In Proceedings of ACM HPDC, May/June, 2016.

5. **E. Kissel**, M. Swany. "Photon: Remote Memory Access Middleware for High-Performance Runtime Systems." In Proceedings of first Annual Workshop on Emerging Parallel and Distributed Runtime Systems and Middleware (IPDRM), IEEE IPDPS, May, 2016
6. M. Zhang, M. Swany, A. Yavanamanda, **E. Kissel**. "HELM: Conflict-free active measurement scheduling for shared network resource management", In Proceeding of IFIP/IM 2015.
7. **E. Kissel**, M. Swany, B. Tierney, E. Pouyoul, "Efficient Wide Area Data Transfer Protocols for 100 Gbps Networks and Beyond", In Proceedings of the 3rd International Workshop on Network-aware Data Management (NDM), IEEE/ACM, November, 2013.
8. El-Hassany, **E. Kissel**, D. Gunter, M. Swany, "Design and Implementation of a Unified Network Information Service", In Proceedings of the International Conference on Services Computing (SCC 2013), IEEE, June 28-July 3, 2013.
9. **E. Kissel**, G. Fernandes, M. Swany, M. Zhang, "Driving Software Defined Networks with XSP", In Workshop on Software Defined Networks (SDN'12) Co-located with the IEEE International Conference on Communications, June, 2012.
10. **E. Kissel**, A. El-Hassany, G. Fernandes, M. Swany, D. Gunter, T. Samak, J. Schopf, "Scalable Integrated Performance Analysis of Multi-Gigabit Networks", In Proceedings of the 5th Intl. Workshop on Distributed Autonomous Network Management Systems (DANMS), April 2012
11. **E. Kissel**, M. Swany, "Evaluating High Performance Data Transfer with RDMA-based Protocols in Wide-Area Networks", In Proceedings of the 14th IEEE International Conference on High Performance Computing and Communications (HPC-12), Liverpool, UK, June, 2012.
12. **E. Kissel**, A. Brown, M. Swany, "Phoebus: A system for high throughput data movement", Journal of Parallel and Distributed Computing (JPDC), Volume 71, Issue 2, pp. 266-279, 2011.
13. **E. Kissel**, M. Swany, "Session Layer Burst Switching for High Performance Data Movement", In Proceedings of PFLDNet, Lancaster, PA, November, 2010.
14. **E. Kissel**, M. Swany and A. Brown, Improving GridFTP Performance Using The Phoebus Session Layer, In Proceedings of IEEE/ACM Conference on High Performance Computing and Networking 2009 (SC2009), November, 2009.
15. J. Mirkovic, **E. Kissel**, "Comparative Evaluation of Spoofing Defenses", IEEE Transactions on Dependable and Secure Computing, November, 2009.

INVITED TALKS AND POSTERS

Resilient System Solutions for Data in Wildland Fire Incident Operations, Poster presentation at NIST Public Safety Stakeholders Meeting (PSCR), San Antonio, TX, June 2017

Permanent storage for your GENI slice: Using the Intelligent Data Movement Service (IDMS), *Upcoming Experimenter Tools Session, GEC21, July, 2014.*

Phoebus and XSP: Enabling High-Performance Data Movement over the WAN, *Asia-Pacific Advanced Network 36th Meeting (APAN 36), August, 2013.*

Monitoring and Accelerating GridFTP, *GlobusWorld 2013, April, 2013.*

SDN Peering with XSP, *Joint Techs: An International Conference of Network Engineers, January, 2013.*

End-to-End Virtualization – Campus, WAN and Data Center, *SCinet Research Sandbox Experiment Results, SC'11, November, 2011.*

SLABS: Session Layer Burst Switching for High-Performance Data Movement, *Joint Techs: An International Conference of Network Engineers, July, 2011.*

GENI Experiments in Optimizing Network Environments using XSP, *Poster presentation at 1st DFG/GENI Doctoral Consortium, March, 2011.*

TEACHING EXPERIENCE

Instructor, **Engineering Networks**, B.S./M.S. Course. Fall 2018
Indiana University, Bloomington, IN

Instructor, **Special Topics: Networks**, Graduate Course (PhD Level). Spring 2018
Indiana University, Bloomington, IN

Lecturer, **Operating Systems**, B.S. Course. 2009
University of Delaware, Newark, DE

Lecturer, **Computer Networks**, B.S. Course. 2009
University of Delaware, Newark, DE

Teaching Assistant, **Introduction to Computer Science**, B.S. Course 2002-2003
University of Delaware, Newark, DE

RECENT GRANT EXPERIENCE

NNSA PSAAP-2 Center for Shock Wave-processing of Advanced Reactive Materials (C-SWARM) 2017 - present

PI: Karel Matous, DOE Grant Number: DE-NA0002377

Role: **Assistant Scientist / Developer**, Indiana University

- Introduced one-sided, RDMA network abstractions and libraries into existing shockwave physics simulation code.
- Profiled and evaluated large-scale simulations on DOE compute clusters.
- Developed constant integration and code maintenance workflows.

Resilient System Solutions for Data Sharing for Wildland Fire Incident Operations 2017 - present

PI: Nancy French, NIST Award Number: 70NANB17H174

Role: **Technical Lead**, Indiana University

- Applied *data logistics* for content delivery in disconnected network environments.
- Managed and advised a team of graduate students developing subcomponents.
- Participated in and facilitated project presentations and reporting requirements.

Multi-Institutional Open Storage Research Infrastructure (MI-OSiRIS) 2015 - present

PI: Shawn McKee, NSF Award Number: 1541335

Role: **Technical Lead**, Indiana University

- Integrated network measurement and monitoring tools such as PerfSONAR.
- Developed SDN best-practices for end-site deployments.
- Technical advisement of graduate students contributing to project components.

PI: **Ezra Kissel**, Indiana University, NSF/GENI Solicitation 4 Project Number: 1956

- Developed and deployed a data distribution network as a persistent GENI service.
- Incorporated active monitoring and measurement infrastructure on GENI resources.
- Managed a team of graduate students and led demonstrations and tutorials.

TECHNICAL SKILLS

Development: **C/C++** HPC development environments: shared memory, asynchronous communication, one-sided messaging, RDMA network fabric APIs, runtime systems. **Python:** concurrent, multithreaded distributed system codes plus measurement and monitoring frameworks over no-SQL databases.

Systems: Operated and maintained numerous compute clusters, network testbeds, and software services in both data center and research lab settings. Developed an SDN-network testbed to teach graduate-level advanced networking course.

Writing: Over 8 years' experience with grant writing and reporting, both self-directed and as contributing technical lead.

PROFESSIONAL ACTIVITIES

Ad Hoc

Reviewer Transactions on Parallel and Distributed Computing, Conference for High-Performance Parallel and Distributed Computing, DOE Office of Science SBIR, Future Generation Computer Systems

Supercomputing Conference Series

SCinet Committee

Interconnect co-chair (SC'18)
DevOps co-chair (SC'15-16)
IT Services chair (SC'14)
IT Services member (SC'09-14)
Research Sandbox member (SC'11-12)