Nathan Jarus

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Education

Expected 2019 | Ph.D. in Computer Science
Missouri University of Science and Technology, Rolla, MO
Graduate Assistantships in Areas of National Need Doctoral Fellow
Advisor: Dr. Sahra Sedigh Sarvestani
Thesis: Model Transformation for Cyber-Physical Systems
Gpa: 4.0/4.0

December 2013 | B.S. in Computer Science
Minor in Mathematics
Missouri University of Science and Technology, Rolla, MO
Office for Undergraduate Research Experience Scholar
Gpa: 3.7/4.0

Experience

Jan 2014 - present | Graduate Research Assistant at **Missouri S&T**
Advisor: Dr. Sahra Sedigh Sarvestani
Developing a mathematical framework for transforming models of systems.

Aug 2016- present | Graduate Teaching Assistant at **Missouri S&T**
Introduction to C++ – Computer Science 1570
Teaching freshman and sophomore students to program in C++.

Jan 2016- May 2016 | Graduate Teaching Assistant at **Missouri S&T**
Tools for Computer Scientists – Computer Science 1001
Teaching freshman and sophomore students program debugging, performance analysis, scripting, and version control.
This class is a pilot run of a lab that will be mandatory for new students.

Aug 2013 - Jan 2014 | Software Developer at **Lumate**, Rolla
Designed and developed a platform to facilitate data sharing between large heterogeneous databases.

Jan 2012 - Dec 2013 | Undergraduate Research Assistant at **Missouri S&T**
Advisor: Dr. Sahra Sedigh Sarvestani
Researched methods of detecting electrostatic discharge on embedded device peripherals. Modified Linux drivers to gather hardware state information. Developed methods for analyzing state information to statistically determine if a sequence of states demonstrates electrostatic discharge.
Work resulted in one journal and one conference publication.

Jan 2010 - Dec 2013 | System Administrator at **Missouri S&T Information Technology**
Developed a FUSE filesystem wrapper to support advanced Linux filesystem operations on a network filesystem. Developed and integrated a system for real-time 3D visualization of large data sets. Developed software to convert a generic dataset to a specific format for the vizualisation system. Supported research projects with both hardware and software.

Summer 2013 | Software Development Engineering Intern at **Amazon**, Seattle
Developed an Identity Broker service to vend temporary resource access credentials to clients based on their identity. Deployed service to production and configured monitoring and alarms.

Summer 2012	Software Development Engineering Intern at **Amazon**, Seattle Deployed to production a self-service scaling web service that reduced developer time spent on new clients. The service also predicted hardware requirements each quarter based on individual client growth estimates. Developed a MapReduce log parsing system to monitor actual service use and provide real-life scaling data for better accuracy.
Summer 2011	Software Engineering Intern at **Garmin International**, Kansas City Modified the map routing algorithm to log better statistical data. Created software to analyze generated routes and determine overall fitness of the routing algorithm. Developed a system to allow other engineers to easily test routing algorithm changes.
Summer 2010	Software Engineering Intern at **Softek Solutions Inc.**, Kansas City Developed an Android application that queried a REST web interface. Developed an Android library for future company applications.

Technical Skills

Languages	Ruby, Python, Haskell, JavaScript, C++, C, Java, Perl, bash, sql, flex, yacc, LaTeX
Development Frameworks	Matplotlib, Hadoop, Django, Linux Kernel
Software	gnu toolchain, Vim, Git, Eclipse

Publications

2016 | **N. Jarus**, S. Sedigh Sarvestani, and A. Hurson.
"Models, Metamodels, and Model Transformation for Cyber-Physical Systems".
To appear in *Proc. of the 7th IEEE Int'l Green and Sustainable Computing Conference (IGSC).*

N. Jarus, M. Woodard, M. Ataei, K. Marashi, J. Lin, A. Faza, P. Maheshwari, and S. Sedigh Sarvestani.
"Analytical Modeling of Cyber-Physical Systems: A Survey of Recent Literature".
To be submitted to *ACM Transactions on Cyber-Physical Systems* in Oct. 2016.

2015 | **N. Jarus**, A. Sabatini, P. Maheshwari, and S. Sedigh Sarvestani.
"Detection, Analysis, and Prediction of the Effects of Electrostatic Discharge on USB Peripherals".
Submitted to the *IEEE Transactions on Instrumentation and Measurement* in Oct. 2015.

2014 | M. Albasrawi, **N. Jarus**, K. Joshi, and S. Sedigh Sarvestani.
"Analysis of Reliability and Resilience for Smart Grids".
In *Proc. of the 38th IEEE Int'l. Computer Software and Applications Conference (COMPSAC), Vasteras, Sweden*, pp. 529–534.
Selected for inclusion in the 2nd 2015 issue of the *NSF Science of Security Index of Significant Research in Cyber Security.*

2013 | A. Sabatini, **N. Jarus**, P. Maheshwari, and S. Sedigh.
"Software instrumentation for failure analysis of USB host controllers".
In *Proc. of the IEEE Int'l. Instrumentation and Measurement Technology Conference (I^2MTC), Minneapolis, MN, USA*, pp. 1109-1114.

2012 | **N. Jarus**.
"Old Ideas in a New Age: Descartes' Influence on Modern Animal Farming".
In *Missouri S&T Undergraduate Research Conference.*