

# Mark Stanovich

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## EDUCATION

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- 2015      **Ph.D. in Computer Science**, Florida State University  
GPA 4.0/4.0  
Dissertation: *Plugging I/O Resource Leaks in General Purpose Real-Time Systems*  
My dissertation presents a novel real-time scheduling algorithm, theoretical analyses, and implementation on a system built with readily available software and hardware. Traditionally, real-time systems are designed to achieve low latency; for instance, a high priority request is expected to start immediately. While providing low latency is desirable, it often results in a reduction in throughput due to resources spent switching between requests rather than using those resources to process requests. My approach provides the flexibility to design a system for achieving a more appropriate balance between high throughput and low latency based on application requirements.
- 2008      **M.S. in Computer Science**, Florida State University  
GPA 4.0/4.0
- 2005      **B.S. in Computer Science**, Florida State University  
Magna Cum Laude with GPA 3.83/4.0

## EXPERIENCE

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- 2016  
Jan–present      **Postdoctoral Researcher**  
Center for Advanced Power Systems (CAPS) at Florida State University
- Development of advanced distributed controls for terrestrial and shipboard power systems
  - Approaches for control evaluation using controller hardware-in-the-loop methods
- 2015  
Aug–Dec      **Adjunct Professor**  
Florida State University  
Introduction to Programming using C++
- May–July      **Postdoctoral Visiting Researcher**  
Chalmers University of Technology  
Göteborg, Sweden
- Developed a novel analysis technique for computing the maximum response time of applications scheduled by a mode-switching scheduling algorithm.
- Jan–Apr      **Teaching Assistant**  
Florida State University  
Graduate-level Advanced Operating Systems
- 2014      **Lead Lecturer**  
Florida State University  
Kernel & Device Driver Programming
- Responsibilities included developing material for lectures, homework, and projects.

- 2013–2014      **Research Assistant**  
Florida State University
- Novel techniques to extend real-time I/O support to commodity hardware and software.
- 2012–2013      **Research Assistant**  
Center for Advanced Power Systems (CAPS) at FSU
- Managed and enhanced a distributed controls and cyber-physical hardware-in-the-loop testbed.
    - Developed a PCI-e communications interface for multiplexing multiple signals to/from an RTDS power simulator to a general-purpose computer. The interface comprised of 3 primary components: logic written in VHDL for communication between a general-purpose computer and the simulator’s fiber optic protocol, Linux device driver written in C, and a TCP/IP communication server written in C++.
    - Incorporated a PLC into the testbed and created prototype applications using C++ and Java. EtherNet/IP was used to provide communications to/from other nodes in the testbed.
    - Configured and networked the testbed with additional embedded, general-purpose computational nodes.
    - Assisted with the addition of network simulation capabilities using OPNET.
  - Techniques to model communication latencies for predicting effects on power systems.
- 2011            **Lead Lecturer**  
Florida State University  
Principles of Operating Systems
- Managed course material 25 students, including lectures, homework, projects, and tests.
- Teaching Assistant**  
Florida State University  
Object Oriented Programming in C++
- Prepared and presented lecture material for recitation class, assisted students with course material, and graded student assignments.
- 2005–2010      **Research Assistant**  
Florida State University  
Modeling Device Driver Effects in Real-Time Schedulability Analysis
- Developed model for device driver workloads to fit them into real-time schedulability analyses.
  - Implemented and enhanced CPU and disk schedulers within the Linux operating system to effectively support real-time applications.
  - Identified and provided corrections for defects in the POSIX standard.
- 2003–2005      **Software Engineer**  
Datamaxx - developer of law enforcement technologies
- Developed application in C# to format incoming law enforcement messages
  - Assisted with NIST validation of AES encryption software
  - Ported Windows applications to work on Unix systems
  - Designed and implemented applications to assist in testing software products
- 1996–2000      **Electronics Technician**  
U.S. Navy
- Completed Naval Nuclear Power Training School, which consisted of rigorous technical training on nuclear energy, nuclear propulsion, and electronic equipment.
  - Duties included operation, repair, and maintenance of nuclear reactor equipment.

## AWARDS

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- 2013 Best Research Presentation FSU CS Expo “Balancing Throughput and Latency to Improve Real-Time I/O Service in Commodity Systems”
- 2010 Best Theory Presentation at the FSU Computer Science Graduate Research Conference
- 2007 Best Presentation at the FSU Computer Science Graduate Research Conference

## PUBLICATIONS

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- 2016 S. Diesburg, C. Meyers, M. J. Stanovich, M. Mitchell, J. Marshall, J. Gould, A. A. Wang, and G. Kuenning, “TrueErase: Leveraging an Auxiliary Data Path for Per-file Secure Deletion,” *ACM Transactions on Storage*, Jun. 2016.
- 2013 M. J. Stanovich, I. Leonard, K. Sanjeev, M. Steurer, T. P. Roth, S. Jackson, and B. M. McMillin, “Development of a Smart-Grid Cyber-Physical Systems Testbed,” in *Proc. of the IEEE PES Innovative Smart Grid Technologies (ISGT)*, Feb. 2013.
- M. J. Stanovich, S. K. Srivastava, D. A. Cartes, and T. L. Bevis, “Multi-Agent Testbed for Emerging Power Systems,” in *Proc. of the 2013 IEEE Power and Energy Society General Meeting (PES)*, Jul. 2013, pp. 1–5.
- 2012 S. Diesburg, C. Meyers, M. J. Stanovich, M. Mitchell, J. Marshall, J. Gould, A. A. Wang, and G. Kuenning, “TrueErase: Per-File Secure Deletion for the Storage Data Path,” in *Proc. of the 28th Annual Computer Security Applications Conference (ACSAC)*, Dec. 2012, pp. 439–448.
- 2011 M. J. Stanovich, T. P. Baker, and A. A. Wang, “Experience with Sporadic Server Scheduling in Linux: Theory vs. Practice,” in *Proc. of the 13th Real-Time Linux Workshop (RTLWS)*, Prague, Czech Republic, Oct. 2011, pp. 219–230.
- 2010 M. J. Stanovich, T. P. Baker, A. A. Wang, and M. G. Harbour, “Defects of the POSIX Sporadic Server and How to Correct Them,” in *Proc. of the 16th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Stockholm, Sweden, Apr. 2010, pp. 35–45.
- 2008 M. J. Stanovich, T. P. Baker, and A. A. Wang, “Throttling on-disk schedulers to meet soft-real-time requirements,” in *Proc. of the 14th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Apr. 2008, pp. 331–341.
- 2007 T. P. Baker, A. A. Wang, and M. J. Stanovich, “Fitting Linux Device Drivers Into an Analyzable Scheduling Framework,” in *Proc. of the 3rd Workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPERT)*, Pisa, Italy, Jul. 2007, pp. 1–9.
- M. Lewandowski, M. J. Stanovich, T. P. Baker, K. Gopalan, and A. A. Wang, “Modeling Device Driver Effects in Real-Time Schedulability Analysis: Study of a Network Driver,” in *Proc. of the 13th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Apr. 2007, pp. 57–68.

## COMPUTER SKILLS

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- Languages Python, C, C++, C#, Java, Bash, Ada, HTML, JavaScript
- Operating Systems Unix/Linux, Windows
- Other Linux kernel and device driver programming