

MACIEJ SWIECH

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PERSONAL INFORMATION

email m-swiech@u.northwestern.edu
website <http://users.eecs.northwestern.edu/~msw978>
phone +1 (847) 859 9795

RESEARCH INTERESTS

Incorporating user satisfaction as a feedback signal into systems, especially on mobile computing devices, as a means of enabling energy savings, datacenter resource management, resource virtualization and virtual machine monitors.

EDUCATION

*Ph.D. in
Computer Science* *Aug 2016* Northwestern University
Department of Electrical Engineering and Computer Science
Thesis: *Kermit: Controlling Green Users
for a Happier Cloud*
Adviser: Prof. Peter A. DINDA

*M.S. in Computer
Science* *April 2013* Northwestern University
Department of Electrical Engineering and Computer Science

*B.S. in Computer
Science* *June 2011* Northwestern University
Department of Electrical Engineering and Computer Science
Adviser: Prof. Randall BERRY

Sept. 2007 Schubart Gymnasium, Ulm, Germany
Rotary International Student Exchange Program

EMPLOYMENT

*Northwestern
University* *2011–Present* Ph.D. Candidate, NORTHWESTERN UNIVERSITY
Department of Electrical Engineering and Computer Science
Evanston, IL
Conducted research in systems that factor in user satisfaction to enable reduction in power consumption; conducted research in hardware feature emulation in virtual machine monitors.

Summer 2014 Research Intern, VMWARE, INC.
ESX Hypervisor Memory Management Team
Palo Alto, CA

VMWare, Inc.

Implemented a hypervisor-based memory checkpointing system for upcoming non-volatile memory storage systems in a virtualized distributed storage solution (existing in VMWare vSphere), and investigated its performance compared to other solutions.

Reference: Rajesh VENKATASUBRAMANIAN vrajesh@vmware.com

Summer 2013 Research Intern, VMWARE, INC.
ESX Hypervisor Memory Management Team
Palo Alto, CA

VMWare, Inc.

Investigated the performance and restructuring implications of replacing currently-existing SSD caches with upcoming non-volatile memory caches in existing storage solutions available in VMWare vSphere applications.

Reference: Rajesh VENKATASUBRAMANIAN vrajesh@vmware.com

Jan-Mar 2011 Independent Study, NORTHWESTERN UNIVERSITY.
Senior Capstone Design Class
Evanston, IL

Northwestern
University

Investigated and designed an Arduino-based modular sensor interface for easy and affordable monitoring of bio-sensors with network communication capabilities.

Reference: Lawrence HENSCHEN henschen@eecs.northwestern.edu

Summer 2010 Undergraduate Research Intern, UNIVERSITY OF
ILLINOIS AT URBANA-CHAMPAIGN
Chiang Research Group
Urbana, IL

University of
Illinois at Urbana-
Champaign

Set up and tested the ABINIT Density Functional Theory simulator using MPI and OpenMPI, created a graphical user interface for the setup and dispatch of experimental runs, ran system administration of the group resources.

Reference: Tai-Chang CHIANG tcchiang@illinois.edu

Summer 2008 Undergraduate Research Intern, UNIVERSITY OF
ILLINOIS AT URBANA-CHAMPAIGN
Kriven Research Group
Urbana, IL

University of
Illinois at Urbana-
Champaign

Assisted in the creation of novel geopolymer molds and investigated the potential future applications of geopolymer. Designed and commissioned a testing cradle for the testing of geopolymer with embedded piezoelectric fibers as an investigation of a potential "smart brick" that would detect structural tremors inside a building.

Reference: Waltraud KRIVEN kriven@illinois.edu

PUBLICATIONS

Journal Articles

- SCIS G. Huang, H. Cai, **M. Swiech**, Y. Zhang, X. Liu, and P. Dinda. DelayDroid: An Instrumented Approach to Reducing Tail-Time Energy of Android Apps. *Science China Information Sciences*.

Refereed Conference Papers

- MASCOTS 2016 **M. Swiech**, H. Cai, P. Dinda, and G. Huang. Prospects for Shaping User-Centric Mobile Application Workloads to Benefit the Cloud. *Proceedings of the IEEE 24th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems*.
- ROSS 2014 **M. Swiech**, K.C. Hale, and P. Dinda. VMM Emulation of Intel Hardware Transactional Memory. *Proceedings of the 4th International Workshop on Runtime and Operating Systems for Supercomputers*, June, 2014.
- MASCOTS 2013 **M. Swiech** and P. Dinda. Making JavaScript Better by Making it Even Slower. *Proceedings of the IEEE 21st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems*, August 2013.

Research Projects

DelayDroid: automated framework for batching network calls in non-interactive, un-modified Android applications, reducing the amount of time radios spend in energy-consuming "tail" state. Joint work with H. Cai, Y. Zhang, and G. Huang at Peking University

Migration of Virtual Machines between Palacios and Gem5, checkpoint translator to run paused Palacios virtual machine images under Gem5 emulator and vice versa. Joint work with G. Tziantzioulis, J. Rula, and M. Suresh at Northwestern University

Miscellaneous Posters and Talks

- GCASR 2015 **M. Swiech**, H. Cai, P. Dinda, and G. Huang. Prospects for Shaping User-Centric Mobile Application Workloads to Benefit the Cloud. At the 4th Annual Greater Chicago Area Systems Research Workshop, April, 2015.
- ROSS 2014 **M. Swiech**, K.C. Hale, and P. Dinda. VMM Emulation of Intel Hardware Transactional Memory. At the 4th International Workshop on Runtime and Operating Systems for Supercomputers, June, 2014.
- GCASR 2014 **M. Swiech**, K.C. Hale, and P. Dinda. VMM-based Emulation of Intel Hardware Transactional Memory. At the 3rd Annual Greater Chicago Area Systems Research Workshop, May, 2014.
- MASCOTS 2013 **M. Swiech** and P. Dinda. Making JavaScript Better by Making it Even Slower. At the IEEE 21st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems, August 2013.
- GCASR 2013 **M. Swiech**, K.C. Hale, and P. Dinda. VMM-based Emulation of Intel Hardware Transactional Memory. At the 3rd Annual Greater Chicago Area Systems Research Workshop, May, 2013.

October 2012

M. Swiech Spanner: a Globally Distributed, Temporally Versioned Database. Talk given at the NU Introduction to Databases class as special topics lecture, October, 2012.

OTHER PROJECTS

Kademlia · Implemented the Kademlia Distributed Hash Table using the Go programming language, and added RDBMS-like “get” and “put” semantics using transactions.

KMA · Implemented a Kernel Memory Allocator in C using Buddy, Lazy Buddy, and Power of 2 algorithms.

TCP/IP · Implemented a TCP/IP stack in C++ within the Minimal Networking Stack (Minet).

DISTINCTIONS

2011-2012 · Murphy Graduate Fellowship Recipient

2012 · Led NU team for NCCDC security regional competition (placed 2nd)

2011 · Member of NU team for NCCDC security regional competition (placed 2nd)

2010 · Member of NU team for ICTF worldwide security competition (placed 8th out of 72, 3rd nationally)

TEACHING

2013,2013 · TA for Introduction to Databases (NU EECS 339), 2 quarters

2012,2016 · TA for Introduction to Computer Systems (NU EECS 213)

2013 · Designed a new database querying lab called “Red, White, and Blue” for the NU Introduction to Databases (EECS 339) course. Students were tasked with geographically querying available FEC political contributions to determine how “red” or “blue” a localized area was.

Guided and assisted undergraduate students in independent study projects:

2015 · Aaron Leon, Philip Meyers, and Alex Cohen
Topic: Modular smartwatch to collect bio-sensor feedback and display information to user

SERVICE AND ACTIVITIES

2014-Present · ACM Student Member

2012-Present · IEEE Student Member

SC 2016 · External Reviewer

ICDCS 2015 · External Reviewer

HPDC 2015 · External Reviewer

HPDC 2013 · External Reviewer

ICAC 2013 · External Reviewer

INFOCOM 2012 · External Reviewer

OTHER INFORMATION

Languages

ENGLISH · Native

GERMAN · Advanced (conversationally fluent, basic reading and writing)

POLISH · Advanced (conversationally fluent, basic reading and writing)

Programming Languages

PROFICIENT · C, Python

FAMILIAR · MySQL, Bash, C++, Perl

REFERENCES

Available upon request.