MACIEJ SWIECH, PHD

PERSONAL INFORMATION

email	swiechfedora@gmail.com
website	http://users.eecs.northwestern.edu/~msw978
phone	+1 (847) 859 9795

SUMMARY

Innovative software engineer with graduate systems research background, focusing on building backend systems. Leveraged previous academic research to create auto-scaling system for Ibotta's distributed storage solution, decreasing costs and manual attention required. Spearheaded and managed a 4-person team of engineers within 6 months of hire, steering a project that would touch nearly every department in the company. Foundational planning member of company initiative to re-architect core backend systems, utilizing microservices and re-thought business abstractions. An enthusiastic team player and deep creative thinker, always looking for opportunities to learn and grow.

EMPLOYMENT

2018–Present Staff Engineer, Ibotta, Inc.
Rewards Platform Planing Lead
Rewards Products Squad, Client Group
Denver, CO

Ibotta, Inc.

Led planning and architecture of system design for comapny transition from Monolith to Microservices. Coordinated communications between teams and stakeholders during planning and transitions.
Reference: Rick Wager rick.wager@ibotta.com

2017–2018 Senior Platform Engineer, Ibotta, Inc.
Squad Lead
Dynamic Segmantion Squad, Client Group
Denver, CO

Ibotta, Inc.

Coordinated the work of multiple engineers and analysts in tandem with product manager. Led the creation of new microservice using Kotlin, as part of a monolith to service orieneted architecture company transition.
Reference: Rick Wager rick.wager@ibotta.com

2016–2017 Platform Engineer, Ibotta, Inc.
Team Lead
Processing Division
Denver, CO

Ibotta, Inc.

Individual contributor on various backend services in Ruby on Rails monolithic application. Created resource management AWS Lambda in Python coordinating with Spark jobs written in Scala. Guided dynamic segmentation

project from a single-person project to full-fledged team, including doing project management work during org transition.
Reference: Rick Wager rick.wager@ibotta.com

2011–2016 Ph.D. Candidate, Northwestern University
Department of Electrical Engineering and Computer Science
Evanston, IL

Northwestern University

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.
Reference: Peter Dinda pdinda@northwestern.edu

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

EDUCATION

Aug 2016 Northwestern University

Ph.D. in Computer Science

Department of Electrical Engineering and Computer Science
Thesis: *Controlling Green Users for a Happier Cloud*
Adviser: Prof. Peter A. Dinda

April 2013 Northwestern University

M.S. in Computer Science

Department of Electrical Engineering and Computer Science
Adviser: Prof. Peter A. Dinda

June 2011 Northwestern University

B.S. in Computer Engineering

Department of Electrical Engineering and Computer Science
Adviser: Prof. Randall Berry

Sept. 2007 Schubart Gymnasium, Ulm, Germany

Rotary International Student Exchange Program

PUBLICATIONS

Dissertation

PhD Dissertation

M. Swiech. Controlling Green Users for a Happier Cloud. *Northwestern University, ProQuest Dissertations Publishing, 2016. 10194432.*

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* 21^{st} *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

Denver Microservices **M. Swiech** and M. Reynolds. Monolith to Microservices – Pitfalls and Learnings. At *Denver Microservices Meetup*, Sept 2018.

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* 4^{th} *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* 4^{th} *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* 3^{rd} *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* 21^{st} *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* 3^{rd} *Annual Greater Chicago Area Systems Research Workshop*, May, 2013.

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

DISTINCTIONS

2011-2012 · Murphy Graduate Fellowship Recipient

2012 · Led Northwestern University team for NCCDC security regional competition (placed 2^{nd})

2011 · Member of Northwestern University team for NCCDC security regional competition (placed 2^{nd})

2010 · Member of Northwestern University team for ICTF worldwide security competition (placed 8^{th} out of 72, 3^{rd} nationally)

TEACHING

2013,2013 · Teaching Assistant for Introduction to Databases (Northwestern University), 2 quarters

2012,2016 · Teach Assistant for Introduction to Computer Systems (Northwestern University)

2013 · Designed a new database querying lab called "Red, White, and Blue" for the Northwestern University 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

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, Ruby

Familiar · MySQL, Bash, C++, Perl, Scala, Kotlin, JavaScript