Lucas F. Chaufournier

LASS Lab Room 214
College of Information and Computer Science
University of Massachusetts Amherst
140 Governors Drive
Amherst, MA 01003

(301) 820-2080
lucasch@cs.umass.edu
www.itsalgorithmic.com

RESEARCH INTERESTS

Operating Systems, Virtualization and Cloud Computing, Distributed Systems, Peer to Peer Networking

EDUCATION

The University of Massachusetts, Amherst, Amherst, MA
M.S/Ph.D Computer Science, September 2015- Present

The George Washington University, Washington, DC
B.S. Computer Science, May 2015
G.P.A. 3.83 out of 4.0 (in major)

University College London, London UK
Semester Abroad
September 2013 - December 2013

RESEARCH EXPERIENCE

Research Assistant

University of Massachusetts Amherst, LASS Lab, Advisor: Prashant Shenoy
September 2015 - Present

Multi-path Transport Protocols in the Data Center, August 2016 - Present

- Evaluating the performance of MPTCP in and between data centers
- Currently developing a system for using MPTCP at the hypervisor level to speed up virtual machine migrations in the WAN for edge clouds.
- Evaluating the value that MPTCP brings to big data applications in the data center.

Containers and VMs, August 2015 - May 2016

- Evaluated performance aspects of both hardware and operating system based virtualization.
- Evaluated interference properties of co-located VM's and Containers
- Evaluated the qualitative aspects that various containerc and VM platforms provide

Research Intern

IBM Research, Mentor: Erich Nahum, Franck Le
May 2017 - August 2017

Evaluating Container Performance at the Edge of the Network

- Evaluated the performance of containers when scaled up
- Built a framework for easily running and analyzing container experiments
- Studied machine learning workloads for IOT.

Undergraduate Researcher

George Washington University, Systems & Security Lab, Advisor: Tim Wood

HyperVTPM, June 2014 - May 2015

- Worked on reducing the trusted computing base of remote attestation with virtual machines
- Developed a simpler process for remote attestation
- Modified the Linux kernel & Xen hypervisor to support remote attestation functions from within kernel space

CloudNet, June - August 2013

- Assisted Professor Tim Wood in improving the stability of virtual machine migrations
- Synchronized the live migration of multiple virtual machines to reduce performance impact
- Modified Xen hypervisor to monitor migrations and allow for synchronization of multiple machines

Virtualization Security in Data Centers, June 2013 - August 2013

- Investigated the possibility of physical cache side channel attacks in virtual machines
- Measured physical cache timings of virtual machines

PUBLICATIONS AND POSTERS

Fast Transparent Virtual Machine Migration in Distributed Edge Clouds
Lucas Chaufournier, Prateek Sharma, Franck Le, Erich Nahum, Prashant Shenoy, Don Towsley
ACM/IEEE Symposium on Edge Computing, October 2017.

Containers and Virtual Machines at Scale: A Comparative Study
Prateek Sharma, Lucas Chaufournier, Prashant Shenoy, Y.C. Tay
ACM International Middleware Conference, December 2016.

HyperVTPM: Minimizing the Trusted Code Base for Remote VM Attestation
Lucas Chaufournier, Masoud Koleini, Timothy Wood, Michael Clarkson
Poster at Symposium on Operating Systems Design and Implementation
Broomfield Colorado, October 2014

"CloudNet: Dynamic Pooling of Cloud Resources by Live WAN Migration of Virtual Machines"
T. Wood, K.K. Ramakrishnan, P. Shenoy, J. van der Merwe, J. Hwang, G. Liu, L. Chaufournier
Journal Paper accepted to appear in the IEEE Transactions on Networking

Virtualization Migration & Security in Data Centers
Lucas Chaufournier, Timothy Wood Poster at George Washington SEAS R&D Showcase

Washington, DC, February 2014

WORK EXPERIENCE

Jr. Information Security and Compliance Analyst
GWU School of Engineering Computing Facility
June 2013 - May 2015

- Responded to security incidents
- Deployed and maintained High Performance Computing Grid Machines
- Provided Support and System Administration for Research Computing Infrastructure
- Built and deployed Linux servers
- Tested new emerging technologies to determine their place in a classroom setting

SELECTED COMPUTER SCIENCE COURSES

Computer Security I(Graduate Level), Cryptography, Computer Networks, Operating Systems,Design of Open Source Software, Computational Complexity, Database Systems, Principles of Programming Languages, Systems Programming and Embedded Systems, Software Engineering, Algorithms and Data Structures, Discrete Structures

TECHNICAL SKILLS

- Programming Languages: Java, Javascript, Python, C, PHP, Bash, Perl
- Operating Systems: Unix, Mac OSX, Windows, RedHat
- Productivity tools including MS Word, PowerPoint, Excel, Github

ACTIVITIES

Department of Computer Science Curriculum Committee
Undergraduate Representative
September 2014 - May 2015

- Provide the undergraduate perspective on items relating to the Computer Science Department curriculum.

The GWU Chapter of the Association for Computing Machinery
President
May 2013 - Present

- Organize Study Halls to help other students struggling in the computer science department.
- Organize Social Events for the Students and Professors.
- Organize and Schedule Workshops to introduce the community to computer science.

The GWU Chapter of the Association for Computing Machinery
Tech Director
April 2012 - May 2013

- Manage the ACM Chapter Website and ListServ
- Organize and Schedule GW ACM Workshops

The GWU ACM International Collegiate Programming Contest Team
Team Member
January 2012 - December 2012

National Cyber League
Pilot Season Participant
September 2012 - December 2012

- Applied Offensive Security Techniques
- Practiced Network Commands

AWARDS & HONORS

- NSF Graduate Research Fellowship Honorable Mention 2016
- GW Alumni Award 2015
- GW Pelton Senior Design Award 2015
- GW CS Meltzer Prize 2015
- GW CS Bard Prize 2015
- 3rd Place GEC22 Student Competition 2015
- Susan Shin Award May 2014
- GW Summer Undergraduate Program in Engineering Research Fellowship 2013
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- NSF REU Scholarship Fall 2014