

## 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  
mrlucasch.github.io

### RESEARCH INTERESTS

Operating Systems, Virtualization and Cloud Computing, Distributed Systems, Blockchains, 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**

Multidisciplinary Topics in Computer Security, Distributed Operating Systems, Visualization, Computer Security I (Graduate Level), Cryptography, Computer Networks, Operating Systems, Design of Open Source Software,

## **TECHNICAL SKILLS**

- Programming Languages: Golang, 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