

# Kyle Graham Schomp

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## Research Interests

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I am a computer scientist with a specialization in distributed systems, networking, and Internet measurement. My current focus is on anycast deployments with particular interest in mitigation of growing DDoS attacks against the Domain Name System (DNS) while maintaining 100% availability. Previously, I've focused on privacy and security issues in the DNS, transport protocols and congestion control in mobile networks, and transport layer security.

## Education

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### Case Western Reserve University

*Ph.D. in Computer Science*

2010 – 2016

*Cleveland, OH*

- Dissertation: *Complexity and Security of the Domain Name System.*
- Advisor: Michael Rabinovich

### Case Western Reserve University

*M.S. in Computer Science*

2008 – 2010

*Cleveland, OH*

- Thesis: *Dynamic TCP Proxies: Coping with Mobility and Disadvantaged Hosts in MANETs.*
- Advisor: Michael Rabinovich

### Case Western Reserve University

*B.S. in Computer Science*

2002 – 2006

*Cleveland, OH*

## Appointments

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### Performance Engineer, Senior II

### Performance Engineer, Senior

*Akamai Technologies, Inc.*

July 2018 – Present

February 2016 – July 2018

*Cambridge, MA*

- Monitor and maintain Akamai's massively distributed DNS infrastructure that is critical to Akamai's core business
- Identify issues and design solutions supported by quantitative analysis to improve the performance, reliability, and safety of the system
- Pre-emptively discover scaling limitations and develop mitigations
- Re-assess existing systems to tune configuration and reduce complexity where not justified by evidence

### Graduate Student Researcher

*International Computer Science Institute*

June 2015 – September 2015

*Cleveland, OH*

### Research Assistant

*Case Western Reserve University*

August 2010 – May 2015

*Cleveland, OH*

### Research Internship

*Telefónica I+D*

September 2014 – December 2014

*Barcelona, Spain*

## Teaching Assistant

Case Western Reserve University

August 2010 – December 2012

Cleveland, OH

- Courses: Computer Networks, Analysis of Algorithms, and Data Structures

## Programmer

Game Communications / TypeFrag

September 2006 – July 2009

Cleveland, OH

## Publications

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- Al-Dalky, R. & **K. Schomp**. “Characterization of Collaborative Resolution in Recursive DNS Resolvers.” In *Passive and Active Measurement Conference (PAM)*, pp. 146-157. Springer International Publishing, 2018. \*
- **Schomp, K.**, M. Rabinovich, & M. Allman. “Towards a Model of DNS Client Behavior.” In *Passive and Active Measurement Conference (PAM)*, pp. 263-275. Springer International Publishing, 2016.
- Varvello, M., **K. Schomp**, D. Naylor, J. Blackburn, A. Finamore, & K. Papagiannaki. “Is the Web HTTP/2 Yet?.” In *Passive and Active Measurement Conference (PAM)*, pp. 218-232. Springer International Publishing, 2016.
- Naylor, D., **K. Schomp**, M. Varvello, I. Leontiadis, J. Blackburn, D. Lopez, K. Papagiannaki, P. Rodriguez, & P. Steenkiste. “multi-context TLS (mcTLS): Enabling Secure In-Network Functionality in TLS.” In *Proceedings of the Conference of the ACM Special Interest Group on Data Communication (SIGCOMM)*, pp. 199-212. ACM, 2015.
- **Schomp, K.**, M. Allman, & M. Rabinovich. “DNS resolvers considered harmful.” In *Proceedings of the ACM Workshop on Hot Topics in Networks (HotNets)*, pp. 16-22. ACM, 2014. \*
- **Schomp, K.**, T. Callahan, M. Rabinovich, & M. Allman. “Assessing DNS vulnerability to record injection.” In *Passive and Active Measurement Conference (PAM)*, pp. 214-223. Springer International Publishing, 2014. \*
- **Schomp, K.**, T. Callahan, M. Rabinovich, & M. Allman. “On measuring the client-side DNS infrastructure.” In *Proceedings of the Internet Measurement Conference (IMC)*, pp. 77-90. ACM, 2013. \*

\*gave conference talk

## Other Presentations

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- DNS-OARC 30. “Recursive Resolver Delegation Selection.” May 2019. <https://youtu.be/vRfuUFPadvA?t=1205>.
- Akamai Inside Research. “Using Anycast to Learn about Routing.” March 2019.
- Cisco FAST Seminar. “mcTLS: Enabling Secure In-Network Functionality in TLS.” September 2015.
- North American Network Operators Group 61. “DNS Record Injection Attacks in Home Routers.” June 2014. <https://www.youtube.com/watch?v=KgdVcHhMOWw>.

## Student Mentoring

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- Rami Al-Dalky, Intern, Akamai Technologies, Summer 2017/2018  
Ph.D. candidate, Case Western Reserve University

## Awards & Honors

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- Worcester Polytechnic Institute STEM Faculty Launch Program (September 2015)
- U.S. Department of Education GAANN Fellowship (August 2010 – July 2013)
- Internet Measurement Conference Travel Grant (October 2013)
- President's Scholarship of Case Western Reserve University (August 2002 – May 2006)

## Professional Activities

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- Graduate student judge for Case Western Reserve University Research ShowCASE, 2013 and 2014.
- Peer reviewer for:
  - IEEE/ACM Transactions on Networking
  - ACM Transactions on the Web
  - IET Information Security
  - Journal of Communications and Networks
  - IEEE Transactions on Services Computing
  - IEEE Transactions on Dependable and Secure Computing