

# Bruce Spang

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## CONTACT INFORMATION

*E-mail:* bruce@brucespang.com      *WWW:* brucespang.com

## EDUCATION

**University of Massachusetts**, Amherst, MA USA

M.S., Computer Science, 4.0 GPA, graduated May 2017.

- Research Area: Computer Networks and Modelling
- Advisor: Donald Towsley

B.S., Computer Science, graduated summa cum laude, 4.0 GPA, May 2015.

## ACADEMIC EXPERIENCE

**University of Massachusetts**, Amherst, MA USA

*Research Assistant*

**Sep 2015 - present**

Participated in DARPA grant to design an overlay network for military communication.

*Independent Study - Cache Networks*

**Fall 2014**

Investigated the behaviors of networks of caches. I simulated networks to find whether going through more caches could reduce the expected number of hops a request travels in the network.

## PROFESSIONAL EXPERIENCE

**Fastly, Inc.**

*Engineer*

**Sep 2013 - Nov 2016**

*Intern*

**May 2013 - Aug 2013**

Researched, designed, built, and operated the globally-distributed cache invalidation system, which is one of the main selling points of Fastly over other CDNs.

Led novel research on optimally routing requests through the network to minimize latency, on caching objects fairly between customers, on avoiding ecmp-caused latency, and on other performance-related topics.

Maintained and improved the configuration management system, distributed configuration loading systems, the end-user performance monitoring system, the domain-to-customer resolution system, and others.

Mentored someone who had just graduated from a programming bootcamp into a role as a strong engineer.

**Icelandia** *Film Crew, Actor*

**July 2015**

Acted and assisted filming of a music video for the Canadian band Icelandia. <https://www.youtube.com/watch?v=wsV>

**Selfie with Strangers** *Team Lead*

**Jan - May 2015**

Team Lead for web programming group. Our group won the best project out of eleven, as voted by the class.

**Dribbble, Inc.** *Intern*

**Nov 2010 - Aug 2012**

Designed and built a tool to search for images by their colors (<https://dribbble.com/colors>). Worked on scaling, improving performance.

## HONORS AND AWARDS

NSF Graduate Research Fellowship - Honorable Mention

UMass - Bay State Fellow (grad)

UMass - National Merit Scholarship (undergrad)

UMass - Overall Outstanding Achievement, computer science department

UMass Course Citations (highest award possible at UMass for achievement in a single class)

- Social Issues in Computing - “For consistently demonstrating conscientiously civil critique and excellence in analytical writing”
- Graduate Systems - “For achieving the highest overall grade as the only undergraduate in a graduate level class”
- Formal Language Theory, Compiler Techniques, Operating Systems, Algorithms, Intro to Computation, Programming with Data Structures - top of class

Google Fiber Hackathon - travel grant recipient, member of winning team

Eagle Scout

## PUBLICATIONS

B. Spang, A. Sabnis, R. Sitaraman, D. Towsley, B. Declene, MON: Mission-optimized Overlay Networks. IEEE INFOCOM 2017 (Acceptance rate: 20.93%). Best in session presentation award.

B. Spang. Building a Fast and Reliable Purging System. <https://www.fastly.com/blog/building-fast-and-reliable-purging-system>

B. Spang. Color Coding. <https://dribbble.com/stories/2011/05/26/color-coding>

## PRESENTATIONS

B. Spang, T. McMullen. Developing a Globally Distributed Purging System. Velocity EU. November 2014. [https://www.youtube.com/watch?v=HfO.6bKsy\\_g](https://www.youtube.com/watch?v=HfO.6bKsy_g)

B. Spang, T. McMullen. Developing a Globally Distributed Purging System. Surge. September 2014

B. Spang. Bimodal Multicast. Papers We Love. May 2014.

<https://www.youtube.com/watch?v=iBvWB2K2ULU>

B. Spang. Colors at Dribbble. Dribbble Meetup. Oct 2011

## PATENTS

B. Spang, T. McMullen, inventors; Fastly Inc, assignee; Data Purge Distribution and Coherency; US Patent Application No US20150237131 A1

## SERVICE

ACM DEBS 2015 - Program Committee Member

Girls, Inc. - Volunteer - Mentored middle school girls in Scratch