

Ryan Beckett

751 Hibben Maggie Rd, Princeton, NJ 08540
(303) 956-6712 | rbeckett@cs.princeton.edu

EDUCATION

Princeton University

Ph.D. in Computer Science (Programming Languages)
Advisor: David Walker
Thesis: *Network Control Plane Synthesis and Verification*

Princeton, NJ

Expected Completion: 2018

Princeton University

M.A in Computer Science

Princeton, NJ

Completed: May, 2015

University of Virginia

B.S. in Computer Science; B.A. in Mathematics
Cumulative GPA: 3.94

Charlottesville, VA

Graduated: May 2013

HONORS AND AWARDS

Google PhD Fellowship recipient. One of 33 PhD students in North America, Europe, and the Middle East to become a Google fellow. 2017

ACM SIGCOMM 2016 **best paper** award entitled “Don’t Mind the Gap: Bridging Network-wide Objectives and Device-level Configurations.” 2016
With Ratul, Mahajan, Todd Millstein, Jitendra Padhye, and David Walker.

Undergraduate Research and Design Symposium (URDS) finalist for undergrad thesis on identifying radars with probabilistic model checking. 2013

Graduated with “Highest Distinction” from the University of Virginia. Awarded to those with a cumulative GPA above 3.8 2013

University of Virginia Intermediate Honors Award for having a GPA in the top 20% of the University after two years. 2011

RESEARCH EXPERIENCE

Princeton

Graduate Research Assistant

Perform research with David Walker on applications of Programming Languages to the verification, synthesis, and formalization of network configurations and Software Defined Networking (SDN) programs.

Princeton, NJ

2014-Present

Microsoft Research*Research Intern***Redmond, WA**

2015-2016

Worked with Ratul Mahajan and Jitendra Padhye to develop a system called Propane to synthesize provably-correct network configurations.

University of Virginia*Undergraduate Research Assistant***Charlottesville, VA**

2011-2013

Worked with Paul Reynolds on an emitter description language for radars that is amenable to automated probabilistic model checking.

TEACHING EXPERIENCE

Research Thesis Mentor for two 4th year undergraduate students, Princeton University, Department of Computer Science. Spring 2017

Teaching Assistant, Advanced Computer Networks (COS 561) Princeton University, Department of Computer Science. Fall 2016

Teaching Assistant, Algorithms & Data Structures (COS 226) Princeton University, Department of Computer Science. Spring 2015

Teaching Assistant, Functional Programming (COS 326) Princeton University, Department of Computer Science. Fall 2014

Undergrad TA: Ordinary Differential Equations (APMA 3250) University of Virginia, Department of Applied Mathematics. Fall 2010

PUBLICATIONS

A General Approach to Network Configuration Verification. **Ryan Beckett**, Aarti Gupta, Ratul Mahajan, and David Walker. To Appear in ACM SIGCOMM, August 2017. 2017

Network Configuration Synthesis with Abstract Topologies. **Ryan Beckett**, Ratul Mahajan, Todd Millstein, Jitendra Padhye, and David Walker. In ACM SIGPLANN Conference on Programming Language Design and Implementation (PLDI '17), June 2017. 2017

Don't Mind the Gap: Bridging Network-wide Objectives and Device-level Configurations. **Ryan Beckett**, Ratul Mahajan, Todd Millstein, Jitendra Padhye, and David Walker. In ACM SIGCOMM, August 2016. 2016

Temporal NetKAT. **Ryan Beckett**, Michael Greenberg, and David Walker. In ACM SIGPLANN Conference on Programming Language Design and Implementation (PLDI '16), June 2016. 2016

Temporal NetKAT. **Ryan Beckett**, Michael Greenberg, and David Walker. 2015
PLVNET 2015: 1st Workshop on Programming Languages and Verification
Technology for Networking, January 2015.

An Assertion Language for Debugging SDN Applications. **Ryan Beckett**, 2014
X. Kelvin Zou, Shuyuan Zhang, Sharad Malik, Jennifer Rexford, and David
Walker. In ACM SIGCOMM HotSDN Workshop, August 2014.

WORK EXPERIENCE

Intentionet **Princeton, NJ**
Part-time Research Employee 2017-Present
Develop a network verification tool called Minesweeper and apply
the tool to check the network configurations of customers.

Microsoft Research **Redmond, WA**
Research Intern 2015-2016
Worked with Ratul Mahajan and Jitendra Padhye to develop a system
called Propane to synthesize provably-correct network configurations.

SHINE Systems and Technology **Charlottesville, VA**
Summer Intern 2012
Helped develop an enterprise web application that was used to
automate the analysis of whether a patent is viable or not.

Secure64 Software Corporation **Denver, CO**
Summer Intern 2011
Implemented a Simple Network Management Protocol (SNMP)
interface to the company's DNS management web application to
enable real-time monitoring of production DNS resolvers.

University of Virginia **Charlottesville, VA**
Undergraduate TA 2011
Graded assignments for a 40-student section of APMA 3250
Applied Mathematics: Ordinary Differential Equations