ROBERT MACDAVID

Software Engineer

2020 - 2021

2014 - 2020

Summer 2017, Summer 2018

EDUCATION

Princeton University	2016 — Present
Ph.D. in Computer Science	
Dissertation (WIP) - Building Scalable Access Networks With Commodity Switches	
Advisor - Jen Rexford	0014 0010
M.S.E. in Computer Science, GPA 4.0	2014 — 2016
Thesis - Compression of Interdomain SDN Policies at Exchange Points	
Rutgers University	
B.S. in Computer Science, GPA 3.45	2009 — 2014

WORK EXPERIENCE

Fill It Local

 Fullstack Web Developer
 2023 — Present

 Designed and deployed web application infrastructure on AWS, automated using Cloudformation

 and Gitlab CI. Wrote a web app using AWS, Cloudformation, PostgreSQL, Clojure, Java, React,

 Nginx, Nix, and Linux.

Open Networking Foundation

Research and Software Development Intern

Designed, developed, and deployed a 4G/5G core router on a multi-campus 5G test deployment. Dataplane was written in P4 for the Intel Tofino switch, control plane was written in Java on top of the Open Networking Operating System (ONOS).

Microsoft – Redmond

Research Intern

2017 — Optimized an experimental router dataplane for Azure datacenters, increasing IPv6 route storage by ~20x. Created a command-line control plane interface for researchers.

2018 – Analyzed trends in network outages and mitigations using simple machine learning techniques.

Princeton University

 Teaching Assistant
 2014 - 2020

 Courses Taught:
 COS 226 - Algorithms & Data Structures (twice), COS 217 - C & Systems Programming, COS 126 - Intro to Computer Science (x2)

McGraw Teaching Fellow

Designed and led a two-day Teaching Assistant Orientation workshop twice per year. Performed classroom observations for instructors seeking a teaching certificate.

SELECT PUBLICATIONS

Scalable Real-Time Bandwidth Fairness in Switches (Awarded Best Paper!) Robert MacDavid, Xiaoqi Chen, Jen Rexford	INFOCOM 2023
A P4-based 5G User Plane Function R.MacDavid, C. Cascone, P. Lin, B. Padmanabhan, A. Thakur, L. Peterson, J. Rexford, O. S	SOSR 2021 unay
Concise Encoding of Flow Attributes in SDN Switches (Awarded Best Paper, R.MacDavid, R.Birkner, O.Rottenstreich, A.Gupta, N.Feamster, J.Rexford	^{!)} SOSR 2017
An Industrial-Scale Software Defined Internet Exchange Point A. Gupta, R. MacDavid, R. Birkner, M. Cannini, N. Feamster, J. Rexford, L. Vanbever	NSDI 2016

SKILLS

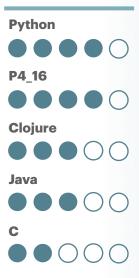
General —

Linux, Git, AWS, Cloudformation, CI/CD, Nix, Vim, IntelliJ IDEA, Python Notebooks, Docker, gRPC, Numpy, Pandas

Networking —

ONOS, Wireshark, Scapy, Intel Tofino Programmable Switches, Software-Defined Networking

LANGUAGES



HOBBIES

Running, Indoor Climbing, Swing Dancing, Being Employed, Illustration