

# Ayush Bhardwaj

Last Updated on 4th February 2023

@ ayushbhardwaj.sys@gmail.com in abhardwaj15 Google Scholar

## Education

### BROWN UNIVERSITY

Sc.M COMPUTER SCIENCE (4.0/4.0)

Jan'21 - Dec'22 Providence, RI

- CS Doctoral Fellowship.
- CS Dept. orientation and social czar.

### IIT ROORKEE

BTECH IN ELECTRICAL  
ENGINEERING (8.19/10)

Jul'15-Jul'19 Roorkee

- Graduated with First Class.

## Coursework

### GRADUATE

Blockchain • Privacy Conscious  
Systems • Logic for systems • Machine  
Learning • Research Methodologies •  
Deep Learning • System Transforming  
Systems

### UNDERGRADUATE

Programming in C++ • Fuzzy Systems  
• Numerical Methods • Network  
Theory • Mathematical Methods •  
Microprocessors & peripheral devices  
• Introduction to Robotics •  
Intelligent Sensors

**UG Dissertation:** HaPT: Load  
Balancing in RAN using Historical  
Temporal Data (Python, C++)

## Skills

### PROGRAMMING

Python • C++ • HTML/CSS • SQL • Go •  
Pearl • Lua • Bash

### TECHNOLOGIES

Istio • AWS • GCloud • Kubernetes •  
Istio • Linkerd • Jaeger • Zipkin • Envoy  
• eBPF • ONOS • OVN • NETCONF •  
OpenFlow • Docker

## Honors

- Awarded Dan Kohn Scholarship  
Fund for KubeCon'22 Europe.
- National Winner Smart India  
Innovation Challenge (2017).
- Awarded Summer Undergraduate  
Research Award, IITR (2017).
- Nominated Manoj Jain Award for  
Excellence in Human Values (2018).

## Experience

### SOFTWARE ENGINEER II

AKAMAI

January 2023 – Present

Cambridge, MA

- Working in the Platform Compute Team.

### R&D SOFTWARE DEFINED NETWORKING INTERN

NUTANIX

May 2022 – Aug 2022

San Jose, CA

- Investigated and implemented synchronisation mechanism for VM  
hostname assignment (Merged with Master) which is critical for  
Openshift production deployments. (Python)
- Received "surpassed expectations" as overall performance and won  
company wide RD university hackathon - uhack22.

### GRADUATE RESEARCH ASSISTANT

BROWN UNIVERSITY

January 2021 – December 2022

Providence, RI

- Developing a digital twin of cloud-native infrastructure to drastically  
lower the cost of deployment based AIOPs training. (Python, C++)
- Investigating the "K8s operators" to understand and quantify their  
availability and security implications resulting in development of POC  
to introduce the notion of risk and context to address the issues. (Go)

### SOFTWARE RESEARCH ASSISTANT

SCIENCE FOUNDATION IRELAND CENTRE FOR FUTURE NETWORKS

August 2019 – January 2021

Dublin, Ireland

- Developed optical-mininet to enable optical emulation in Python to  
enable experimentation of ML algorithms and cross validated it on  
city-scale advanced testbed. (Python)
- Developed an SDN interface for a telemetry system in Dual WSS  
ROADM architecture to ease debugging of faults. (Python)

### TRAINEE R&D

STMICROELECTRONICS

May 2017 – July 2017

Greater Noida, India

- Designed a MAC protocol for P2P Communication in LoRa, that  
exploits improved Gossip Based Discovery to eliminate the need of  
gateway and help in larger scale deployments. (C++)

## Other Projects

- **MicroGDPR**: Develop global and local agents for enforcing GDPR  
compliance using existing observability tools. (Python)
- **Service Customization Using Open Cellular Stack Based Local  
Breakout**: Developed a Flow Management Engine and Packet Filters  
that underpins the logic for different Local Breakout scenarios and  
reduced the E2E latency by 38% for custom services. (Lua, C++) -  
Collaboration University of Edinburgh, UK

## Selected Publications

- **Ayush Bhardwaj**, and Theophilus A. Benson. "KubeKlone: A Digital  
Twin for Simulating Edge and Cloud Microservices." In 6th Asia-Pacific  
Workshop on Networking (APNet 2022).
- **Ayush Bhardwaj**, Zhenyu Zhou, and Theophilus A. Benson. "A  
Comprehensive Study of Bugs in Software Defined Networks." In 2021  
51st Annual IEEE/IFIP International Conference on Dependable  
Systems and Networks (DSN), pp. 101-115. IEEE, 2021.