

Ayush Bhardwaj

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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 • Terraform •
Consul • Vault • SaltStack • Packer

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 Infrastructure Team. (Go, Python)
- Collaborated with compute developers to identify service mesh requirements and benchmarking different mesh options.

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)

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 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.