Ayush Bhardwaj

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Education

BROWN UNIVERSITY
Sc.M Computer Science (4.0/4.0)
📅 Jan'21 - Feb'23   📍 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

SR. SOFTWARE ENGINEER (JUL'24) ← SE II
Akamai
📅 January 2023 – Present   📍 Cambridge, MA
- Worked in the Platform Compute Infrastructure Team (Go, Python), mentoring junior engineers.
- Architected and deployed a service mesh while developing two microservices (Go), enhancing security posture.

SOFTWARE DEFINED NETWORKING INTERN
Nutanix
📅 May 2022 – Aug 2022   📍 San Jose, CA
- Investigated and implemented synchronisation mechanism for VM hostname assignment 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)

RESEARCH ASSISTANT
Trinity College Dublin
📅 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
- Deokar, Mugdha and Men, Jingyang and Castanheira, Lucas and **Bhardwaj, Ayush** and Benson, Theophilus A. "An Empirical Study on the Challenges of eBPF Application Development." In eBPF '24.
- **Ayush Bhardwaj**, Zhenyu Zhou, and Theophilus A. Benson. "A Comprehensive Study of Bugs in Software Defined Networks." In 2021 51st DSN'21