

Ayush Mishra

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SUMMARY

MS Computer Science candidate (3.9 GPA) and **Software Engineer** with 3+ years of experience in scalable APIs and full-stack development. Proven expertise in **Network Engineering** through graduate coursework, including configuring ISP-style routing (MPLS, BGP, OSPF) and **Network Automation** (Python, Netmiko, NAPALM, Ansible). Seeking high-impact **Network Automation**, **Software**, or **Network Engineering** roles leveraging this combined expertise.

EDUCATION

University of Colorado-Boulder

MS, Computer Science, 3.9/4.0 GPA

May 2026

Boulder, CO

Relevant Course Work: Enterprise Networks, Network Systems, Network Automation, IP Routing and Protocols, Network Analysis and modelling

University of Nebraska-Lincoln

BS, Computer Science, 3.5/4.0 GPA

May 2021

Lincoln, NE

SKILLS & INTERESTS

- **Programming Languages & Tools:** C++; Python; Cisco IOS; JS (ReactJs, VueJs); SQL; MongoDB; AWS; Docker; Linux; Laravel;
- **Networking Concepts and Technologies:** IPv4/IPv6; TCP/IP; OSPF; BGP; ARP; DNS; STP; RIP; EIGRP; Troubleshoot using Wireshark; Wi-Fi; MPLS; IPSec;
- **Network Automation:** Netmiko; NAPALM; Wireshark; GNS3; J2; Ansible; Cisco Packet Tracer;

GRADUATE PROJECTS

Enterprise Networks, IP Routing & Protocols, and Network System

- Configured and tested advanced ISP-style routing protocols on **actual hardware**, including **MPLS** with **OSPF/LDP** and **MPLS-TE** (RSVP-TE/CSPF) for primary/backup path engineering, and Policy-Based Routing.
- Designed campus-style Layer 2/3 switching with **VLANs**, trunking, inter-VLAN routing, and enhanced resiliency using **STP/RSTP** and EtherChannel on hardware Cisco gear.
- Implemented various routing protocols (**OSPF, RIP, EIGRP**) while integrating other layer technologies and **led a team** in the configuration of **BGP** and **OSPF** on physical networking devices for complex topologies.
- Developed advanced networking applications and services in C, including a **UPD-based FTP** style client/server, a concurrent **TCP HTTP** web server, an **HTTP caching** and **reverse proxy**, and a distributed file system that shards files across multiple servers for redundancy.

Network Automation

- Automated multi-router configuration workflows in GNS3 using Python (Netmiko/NAPALM) with external config files, IPv4 validation + reachability checks, and saved device running-config snapshots for repeatable deployments.
- Built a Flask-based network automation app to collect OSPF inputs, persist parameters in a SQL database, deploy inter-area OSPF via NAPALM, and generate config diffs to detect drift between current and previously saved configurations.

WORK EXPERIENCE

Cisco (Capstone)

Sep 2025 - Pres.

Software(Network) Engineer

Boulder, CO

- Built an LLM-driven, intent-based configuration system for Cisco routers with Python/Flask backend, MongoDB vector search, and a React UI; implemented the RAG pipeline and APIs for file management, history, and execution workflows.
- Integrating Jinja-based config templates, extending the prompt workflow with LangChain, and building an MCP server to improve answer verification and reliability.

VTM Group

May 2023–Aug 2024

Technical Marketing Engineer

Beaverton, OR

- Automated data collection and other testing procedures for various standards clients (HDMI, USB, VESA, PCI-SIG), tools built are actively used in testing events around the world.
- Designed multiple Databases and implemented full stack applications using Laravel Framework for standards.

Novus Labs

Oct 2021–Apr 2023

Software Developer

Hillsboro, OR

- Built scalable API, architecting backend for Web/IoT Applications using N5 sensors, also implemented source-to-source code transformation using **clang-LibTooling(C++)** for Robot Operating System.
- Wrote firmware for an HID device to empower visually impaired individuals with an easy to incorporate screen reading braille device.

Tokn Inc. (Startup)

May 2021–Jan 2022

Software Developer (Backend)

Remote

- Architected the backend with a NoSQL database, and managed/developed scalable API for the MVP rollout. Involved closely with the frontend (React JS), while simultaneously working with the music copyright and blockchain team.

TEACHING, LEADERSHIP and VOLUNTEER EXPERIENCE

Computer Science Department, CU Boulder

Aug 2024 – Pres.

Course Manager(Spr 2025), Grader (Fall 2024, Fall 2025, Spring 2026) (Linear Algebra CSCI 2820)

Boulder, CO

Grader (Summer 2025) (Design and Analysis of Algorithms CSCI 3104)

- Responsible for Grading and providing feedback on students assignments, homeworks and quizzes. Also host office hours to answer any questions regarding the coursework.

Department of Computer Science, UNL

Jan 2019 – May 2020

Teaching Assistant (Data Structures and Algorithm and Intro to Discrete Structures)

Lincoln, NE

- Help students with any questions on coursework, homework, or coding assignments. Also, helped GTAs with hosting recitation courses.
- Outstanding Undergraduate Teaching Assistant 2019 - 2020 ([Link](#))

Certifications

- **Cisco Certified Network Associate (CCNA, Exp. May 2026)**
- **JNCIS DevOps (Exp. June 2026)**