Andrew Mitchell

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Experience

Amazon Web Services - *Software Development Engineer* *August 2025 - Present*

- Develop and maintain core node lifecycle functionality for EKS Auto Mode and OSS Karpenter, a widely adopted Kubernetes node autoscaler.
- Ship features, bug fixes, and automated test suites that impact hundreds of thousands of clusters, including EC2 health event monitoring for proactive detection of instance/system failures and a configurable do-not-disrupt grace period for temporary pod protection from node disruption.
- Authored and merged ~50 PRs across kubernetes-sigs/karpenter and aws/karpenter-provider-aws, and reviewed over 50 PRs from open-source community contributors.
- Resolve high-severity production incidents and continuously improve service observability as an active participant in 24/7 on-call rotations.

Amazon Web Services - *Software Development Engineer Intern* *May 2024 - August 2024*

- Enhanced production visibility for the ECS Fargate Agent team by implementing new availability metrics in Go.
- Built the Fargate Data Plane Availability Dashboard, synthesizing complex metric streams to enable on-call operators to rapidly root-cause issues across tens of millions of active instances.

NASA Jet Propulsion Laboratory - *Software Engineering Intern* *June 2023 - August 2023*

- Scaled the DSN Telemetry Accountability Project under the Deep Space Network Emulator team, optimizing how telemetry data is tracked from spacecraft to JPL by generating records at specific venues along the path.
- Implemented multi-stream data handling capabilities in C, allowing the system to simultaneously process and validate distinct telemetry data types with zero data loss.
- Authored comprehensive technical documentation detailing the new multi-stream architecture.

Engineering & Science Computing at Notre Dame - *Computer Consultant (Part-time)* *August 2022 - May 2025*

- Provisioned and deployed enterprise hardware, including processing and imaging new laptops and desktops, managing asset delivery, and providing IT troubleshooting for faculty and staff.

Skills

Languages: Go, Python, C/C++, JavaScript/TypeScript | **Cloud/DevOps:** AWS, Kubernetes, Karpenter, Linux, Git

Projects

Rubik's Cube Solver - *Python, OpenCV, AI search* - https://github.com/AndrewMitchell25/cube-solver

- Implemented the Kociemba algorithm in Python using an Iterative Deepening A* search with heuristic data tables, consistently generating near-optimal cube solutions in under 3 seconds and fewer than 25 moves.
- Integrated OpenCV for real-time computer vision, combining edge and color detection to determine cube state and build a seamless pipeline from scan to solution.

Bminor Compiler - *C, x86* - https://github.com/AndrewMitchell25/amitch27-compiler

- Built a complete compiler including lexical analysis, parsing, semantic analysis/typechecking, and x86 assembly generation for Bminor, a custom C-like language.

Education

University of Notre Dame | *Notre Dame, IN* *2021-2025*

- Bachelor of Science in Computer Engineering
- GPA: 3.93 | Magna Cum Laude | Dean's List (6 semesters) | Honor Societies: Tau Beta Pi (TBP), IEEE-HKN
- Relevant coursework - Distributed Systems, Data Structures, Compilers & Language Design, Machine Learning, Systems Programming, Operating Systems, Computer Vision, Intro to AI, Web Dev, Theory of Computing

Interests

FPV Drones - Built my own custom First Person View quadcopter from scratch, involving soldering, electronic systems, and ongoing mechanical repairs, along with learning how to fly and perform tricks with it.
Speedcubing - Competitive Rubik's cube solver, achieving a 3x3 average of ~12 seconds and peak ranking in the top 300 in the country in one event, former member of the ND Rubik's Cube Club.
Vocal Performance - Performed in and led prestigious choral groups from middle school to college.