Dev Singh

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EDUCATION

University of Illinois Urbana-Champaign — Urbana, IL
Master of Computer Science — *August 2025 – May 2026*
Bachelor of Science in Computer Science (Minor in Business) — *August 2022 – May 2025*

EXPERIENCE

Capital One — New York, NY & McLean, VA

Software Engineer Intern — New York, NY — *June 2025 – August 2025*
- Integrated a travel itinerary generation solution using data from various travel sources, including hotel and flights.
- Delivered an individualized user experience by creating a serverless data pipeline to share necessary travel context with a GenAI provider while protecting customer privacy and confidential inventory details.

Software Engineer Intern — McLean, VA — *June 2024 – August 2024*
- Unified automated and manual fraud decisioning into one platform with shared-attribute linking, reducing the average handling time by 16%, saving $5M in operational costs, and increasing investigation throughput.
- Improved application resiliency and production support via end-to-end testing, central error handling, and logging.

Caterpillar Inc. — Chicago, IL

Software Engineer Intern, Machine Learning Operations — *May 2023 – December 2023*
- Achieved an eightfold increase in supported throughput by leveraging an event-driven architecture, asynchronous I/O, multi-threaded operations, and Redis caching to enhance performance and scalability.
- Cut anomaly detection pipeline runtime by 86%, boosting service sales and improving operational efficiency.
- Reduced storage costs by 12% by developing automated tool to identify and remove obsolete prediction models.

University of Illinois — Urbana, IL

Research Assistant — *August 2025 – Present*
- Engineered a tool to automatically collect and analyze C/C++ memory errors from student environments, enabling a large dataset of student errors for pedagogical analysis and improvement of instructional material.
- Enhanced learning for students with disabilities by building and leading the deployment of a real-time captioning tool, architecting its multi-room capabilities for concurrent lectures.

CS 341 (System Programming) Infrastructure Lead — *August 2024 – January 2026*
- Rebuilt autograder with a Jenkins-based backend, improving maintainability and enabling flexible and comprehensive test cases, while increasing infrastructure reliability.
- Built infrastructure monitoring stack and served as "on-call" contact for production incidents.

CS 357 (Numerical Methods) Course Assistant — *January 2023 – May 2025*
- Assisted students with group assignments and general understanding of numerical analysis methods.

Zakti Security Labs — Naperville, IL

Software Engineer Intern — *May 2019 – April 2023*
- Reduced non-compliant and unauthorized accesses to regulated systems by 15% through development of full-stack tools that enable businesses to identify and mitigate data security issues in real time.
- Built an end-to-end encrypted file transfer portal for regulated businesses with stringent privacy requirements.
- Developed disaster response plans that enable business continuity and recovery for high-risk organizations.
- Performed security audits for clients using the NIST and OCTAVE cybersecurity frameworks to deter cyberattacks and ensure compliance with HIPAA and SOC2 standards.

PROJECTS

ACM @ UIUC Core — *Aug. 2022 – Present*
- Built a serverless, multi-region, platform for event management, merchandise sales, member services, and more with 99.99% uptime for 5000+ users. Integrated enterprise controls including auditing and application monitoring.
- Improved cybersecurity posture by implementing fine-grained access controls and zero-trust security using Microsoft Entra ID and Cloudflare Access, along with custom internal tooling for security auditing.

SKILLS

AWS {Neptune, Fargate, Lambda, S3, DynamoDB, EC2, RDS}, C++, Java, Kafka, Kubernetes, GitHub, TypeScript, Node.JS, Python, React, Redis, SQL, CI/CD, Jenkins.