

Vatsal Goel

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EDUCATION

UNIVERSITY OF UTAH

Master of Science in Computer Science

Anticipated May 2025

SRM INSTITUTE OF SCIENCE & TECHNOLOGY

Bachelor of Science in Computer Science

May 2023

TECHNICAL SKILLS

Languages: Python, C/C++, TypeScript, JavaScript, Java, SQL, Go, Bash, Shell scripting, YAML

Frameworks & Libraries: Flask, Fast API, Node.js, Express.js, React, REST APIs, TensorFlow, Pydantic

Cloud & DevOps: AWS, Docker, Kubernetes, Terraform, CI/CD, Git, OpenAPI/Swagger, Agile

PROFESSIONAL EXPERIENCE

Software Engineer

University of Utah

Oct 2023 - Present

Salt Lake City, UT

- Streamlining record ingest workflows through ticketing systems, reducing processing time by 30%.
- Engineering data verification workflows with Python, reducing manual effort by 70% and ensuring 99.9% data accuracy.
- Automating metadata validation and extraction processes using Python and Bash, enhancing digital preservation integrity across 1M+ records.

Graduate Teaching Assistant – Cyber-Physical Systems and IoT Security

University of Utah

Aug 2024 – Dec 2024

Remote

- Delivered technical instruction and lab support to 20+ graduate students, simplifying complex CPS & IoT security topics.
- Facilitated weekly hands-on labs and discussions, boosting lab completion rates by 40% through real-world CPS attack simulations.
- Mentored 6+ student teams on capstone project execution, enhancing collaboration and driving 100% on-time project delivery.

Software Engineer – Full Stack

XGRO Technologies

Oct 2021 – Oct 2022

Pune, India

- Developed full-stack e-commerce platforms using React, SQL, and REST APIs, improving system scalability.
- Optimized backend queries, caching, and API response times, reducing page load times by 30% & bounce rates by 12%.
- Designed and implemented responsive UI/UX with Figma, CSS and Adobe Creative Cloud resulting in increasing user engagement by 25%.

PROJECTS

[AWS Powertools for AWS Lambda \(TypeScript\)](#) | TypeScript, Node.js

Jan 2025 - Present

- Implemented JSON Schema validation utilities, including a `@validator` decorator and a Middy.js middleware for request/response validation.
- Collaborated with AWS maintainers to align with architectural patterns across multiple releases, Mentioned as a major contributor in 3+ public release notes.

[AWS Powertools for AWS Lambda \(Python\)](#) | Python, Pydantic

Feb 2025 - Present

- Delivered 4+ production-ready schema utilities, including AppSync/WebSocket event parsing and recursive DataMasking for complex Pydantic objects.
- Achieved 100% test coverage across 40+ unit tests and improved documentation clarity.

[DNS Server](#) | Python, Socket Programming

Nov 2024

- Constructed a high-performance DNS server leveraging Python and RFC standards, handling up to 5K queries/second.
- Enabled support for recursive query handling and diverse DNS record types, ensuring scalability across large datasets with 50% faster response times through caching.

[Raft-Based Fault-Tolerant Key-Value Store](#) | Go, Raft, Distributed Systems

Sep 2024

- Architected a robust key-value storage system in Go using Raft consensus, distributed systems and concurrency.
- Delivered fault-tolerant capabilities through leader election, log replication, and state machine execution, ensuring consistency and resolving 95% of network partition issues within minutes.