

# ISHANI KOHLI

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SOFTWARE ENGINEER • AI / ML ENGINEER • FULL-STACK DEVELOPER

## SUMMARY

Software and AI/ML engineer (MS Computer Engineering, Virginia Tech, GPA 3.77) with full-stack and backend experience building scalable, production microservices on GCP/Kubernetes across the full SDLC. Strong foundation in data structures, algorithms, and OOP, with hands-on applied ML (HuggingFace Transformers, PyTorch, OpenAI API) and blockchain/Web3 development. Google-certified Associate Cloud Engineer who ships user-centered products with measurable impact.

## EDUCATION

**Virginia Tech — M.S., Computer Engineering (Software & Machine Intelligence)** | Aug 2024 – May 2026

GPA 3.77/4.0 • Coursework: Large-Scale Software Engineering, Advanced ML, NLP, Computer Vision, Information Security

**Guru Gobind Singh Indraprastha University — B.Tech, Computer Science** | Jul 2019 – Jun 2023

GPA 9.57/10 • Department Rank 2

## EXPERIENCE

### Graduate Assistant, Full-Stack Developer

May 2025 – May 2026

Virginia Tech • Blacksburg, VA

- Grew the user base 42% (5K to 7.2K+) and expanded accessibility for 2,000+ students with disabilities by leading iterative frontend modernization of a legacy exam platform across multiple sprints, migrating to HTML5/CSS3/JavaScript with WCAG compliance.
- Delivered 5+ production feature enhancements as primary developer — including an exam-management module built from scratch — using PHP, JavaScript, MySQL, and GitLab CI/CD, eliminating manual deployments through automated pipelines.
- Conducted user research with students and staff to shape exam and student-facing workflows, translating findings into prioritized feature requirements.

### Grader, ECE-5464 (Applications of Machine Learning)

Jan 2025 – May 2025

Virginia Tech • Blacksburg, VA

- Evaluated and debugged 500+ ML assignments for 80+ graduate students across supervised learning, neural networks, ensemble methods, and unsupervised learning, delivering targeted feedback on model architecture, hyperparameter tuning, and code quality.
- Guided students through backpropagation, gradient descent, and regularization via written feedback and 1:1 sessions, bridging ML theory and practical implementation.

### Software Engineer (incl. SWE Intern, Jan–Jun 2023)

Jan 2023 – Jun 2024

Persistent Systems • Goa, India

- Reduced code vulnerabilities 30% by building a full-stack code-quality analysis platform with a user-facing dashboard in TypeScript across the full SDLC, integrating SonarQube and CAST APIs to automate error detection across 15+ enterprise codebases.
- Cut manual review cycles by conducting user research with 8+ developers across QA, Frontend, and Product to identify code-review pain points, then partnering with ML designers to integrate intelligent, AI-assisted code-review suggestions.
- Shipped 10+ RESTful APIs for data ingestion, reporting, and ETL pipelines using Java, Spring Boot, and MySQL, deployed on GCP with Kubernetes-based horizontal scaling.
- Reduced deployment time from hours to minutes by configuring GitLab CI/CD pipelines with Docker-based builds, eliminating manual releases for the backend team.
- Earned Google Associate Cloud Engineer certification and onboarded 5+ teammates through knowledge-sharing sessions and reusable GCP project templates, accelerating cloud adoption.

### Blockchain Software Developer (Intern)

Mar 2022 – Jun 2022

Antier Solutions • India

- Audited and developed ERC20/BEP20 smart contracts in Solidity and contributed to DeFi protocols and NFT platforms across the full Web3 product lifecycle, improving contract security and reliability.

## PROJECTS

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### Smart Resumes — Full-Stack Resume Builder | *Personal Project*

React, Redux, Firebase, Vercel • [github.com/ishani02](https://github.com/ishani02)

- Developed a full-stack resume builder with multi-template live A4 preview and one-click PDF export, solving cross-component state with Redux and debounced Firestore auto-save; deployed via Vercel CI/CD.

### Real-Time Collaborative Whiteboard | *Personal Project*

Electron.js, Canvas API, Socket.io • [github.com/ishani02](https://github.com/ishani02)

- Built a cross-platform desktop whiteboard with a custom Canvas drawing engine and real-time multi-user sync via Socket.io WebSockets, including a layered undo/redo stack for concurrent edits.

### Multi-Task NLP via Task Vector Composition | *Academic Project*

Python, PyTorch, Transformers, BERT, HuggingFace

- Built a parameter-efficient multi-task learning system using task vector composition, reaching 87% accuracy on sentiment analysis and 74% F1 on named-entity recognition.
- Held the model to 110M parameters—the same footprint as base BERT—while balancing performance across tasks, cutting storage 50% versus keeping separate fine-tuned models.
- Fine-tuned BERT independently on SST-2 and CoNLL-2003, extracted task-specific weight deltas, and merged them with scaled averaging to flexibly prioritize tasks.

### Investigating Antifragility in Large Language Models | *Academic Project*

Python, PyTorch, Transformers, LLaMA 3, FGSM

- Investigated the robustness of LLMs adapted for image classification with LIFT, measuring performance under FGSM adversarial attacks across epsilon values from 0.01 to 0.8.
- Found that synaptic filtering degraded LLM accuracy from 83% to 66% by disrupting self-attention, revealing fundamental architectural differences between LLMs and traditional deep neural networks.
- Implemented two synaptic filtering approaches—percentage-based and magnitude-based—to test the antifragility hypothesis on 60K MNIST examples.

### Prism Domains — NFT Domain Name Service | *Personal Project*

Solidity, Polygon, Web3 • [github.com/ishani02](https://github.com/ishani02)

- Built an NFT-based domain name service on Polygon, implementing on-chain registration and ownership via Solidity smart contracts.

### ZKP Password Authentication System | *Personal Project*

Circom, Groth16, Zero-Knowledge Proofs • [github.com/ishani02](https://github.com/ishani02)

- Designed a zero-knowledge-proof password authentication system using Circom and the Groth16 proving scheme, enabling credential verification without exposing secrets.

## TECHNICAL SKILLS

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**Languages:** Python, Java, JavaScript, TypeScript, C++, PHP, SQL, Solidity

**Backend & Cloud:** Node.js, Express.js, Spring Boot, RESTful APIs, Google Cloud (GCP), Kubernetes, Docker, CI/CD, ETL pipelines, microservices

**Methodologies:** Agile/Scrum, System Design, Microservices Architecture, OOP, Data Structures & Algorithms, SDLC, Test-Driven Development, Code Review

**AI / ML:** HuggingFace Transformers, PyTorch, TensorFlow, Keras, scikit-learn, OpenAI API, NLP (BERT), adversarial robustness (FGSM); foundations in LLMs & applied GenAI

**Frontend:** React.js, Redux, HTML5, CSS3, Bootstrap, Electron.js, Canvas API

**Databases & Tools:** MySQL, MongoDB, Firestore, Git/GitLab, SonarQube, Postman, Socket.io, Maven

**Web3 & AI Tools:** Smart contracts (ERC20/BEP20), DeFi, ZKPs (Circom/Groth16); GitHub Copilot, Cursor, Amazon CodeWhisperer, ChatGPT, Claude

**Certifications:** Google Associate Cloud Engineer