ISHAAN SINGH

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EDUCATION

University of Southern California — Los Angeles, USA
Master of Science - Computer Science; GPA: 3.95 — *Fall 2023 - Spring 2025*

National Institute of Technology Karnataka — Surathkal, India
Bachelor of Technology (Honors) - Computer Science and Engineering; GPA: 9.62 — *Fall 2019 - Spring 2023*
Major GPA: *9.62 on 10 point scale;* **Honors GPA:** *9.20 on 10 point scale*

SKILLS AND COURSES

- **Tools**: Kubernetes, Docker, GIT, SQL, NoSQL, GDB, Tableau, ArcGIS, Atlassian Services, Jenkins, MATLAB
- **Platforms**: AWS: Sagemaker, Bedrock, EC2, Route 53, Lambda; GCP: Firebase, Compute Engine, Console, Vertex AI
- **Languages**: Python, Ruby, C, C++, JavaScript, MATLAB, SQL, Bash, Java
- **Frameworks**: Django, NodeJS, Ruby on Rails, Flutter, Android, L3-L7 Networking, Apache Hadoop, Springboot
- **Soft Skills**: Leadership, Event Management, Writing, Public Speaking, Time Management
- **Algorithms Courses**:
  Advanced Data Structures and Algorithms, Analysis of Algorithms, Machine Learning, Digital Image Processing, NLP
- **Systems Courses**:
  Database Systems, Operating Systems, Computer Networks, Wireless Networks, Advanced Computer Networks, Software Defined Networks, Network Security, Network Engineering, Database Security, Cloud Computing, Internet of Things and Applications, Distributed Data Management
- **Theoretical Courses**:
  Discrete Mathematical Structures, Theory of Computation, Linear Algebra, Design and Analysis of Algorithms, Cryptography, Real Analysis, Software Engineering, Quantum Computing and Quantum Cryptography
- **Hardware Courses**:
  Design of Digital Systems, Computer Organization and Architecture, High-Performance Computing

WORK EXPERIENCE

Kintsugi Global, Inc. — Los Angeles, USA
ML Engineer and Software Developer (Summer Internship) — *May 2024 - Jul 2024*

- **Machine Learning**: Developed and deployed a RAG-chatbot powered by LLaMA3, fine-tuned on sourced data to enhance user engagement by 25% on the platform.
- **System Architecture Design**: Created a comprehensive system design plan, leveraging insights into the platform.
- **Network Engineering and DevOps**: Managed AWS infrastructure - storage buckets, deployments, and cloud instances. Oversaw virtual networking and deployment of 7 microservices.
- **Authentication and Authorization**: Served as the Technical Project Manager (TPM) for OAuth planning and Single Sign-On (SSO) design. Also designed a unique onboarding experience.
- **Data Security**: Implemented ethical data handling practices across regional, global deployments on Mongo and AWS.
- **Database Administration**: Sourced anime and manga data from various platforms; Designed data structures and managed database administration for the team.
- **Impact**: Oversaw system design and PoC development for the startup, achieving complete deployment and app-ready status in a period of 3 short months. Allowing Kintsugi to begin marketing campaigns, cater to the Japanese Govt requirements and explore Web3 standards for supporting a client-first environment and its deployment.
- **Stack Used**: AWS Sagemaker, Bedrock, EC2, Route 53, Mongo Atlas, Nginx, Certbot, MERN, Django, Pytorch, DeSO

IRIS NITK — Surathkal, India
Software Developer (Part-time Co-op) — *Aug 2020 - Jul 2023*

- **Full stack web development**: Developed University Information Management System to record achievements of faculty and students. Developed a Notifications module to handle push notifications.
- **Tech Lead**: Developed and maintained careers and course registration portals for NITK, used by over 4000 active students daily. Responsible for design and feasibility study of all new modules and developments. Mentored a team of 30 students to maintain the stack.
- **REST API Development**: Formulated APIs for IRIS mobile app with over 8000 installs.
- **Impact**: Showcased leadership and responsibility in managing IRIS as a daily driver and ERP of NITK responsible for all student-related activities (course registration, placements); faculty-related activities (course management, appraisals, project recruitment); administrative tasks (infrastructure management, vehicle management, contact tracing, event organization); with over 10000 daily users.
- **Stack Used**: Ruby on Rails, NodeJS, Flutter, Firebase Services, MySQL, ServiceWorkers

- **SamsoTech**   Dubai, UAE
  Software Engineering Intern (Summer Internship)   *May 2023 - July 2023*
  - **Frontend and API Development**: Developed a digitized hotel check-in and kiosk experience for guests, complete with state management, payment gateway integration, and CI/CD pipelines.
  - **Impact**: Deployed tool is now publicly available as a SaaS for hotel chains with two clients as of date.
  - **Stack Used**: React, Redux, Typescript, REST
- **ServiceNow**   Hyderabad, India
  Software Engineering Intern (Summer Internship)   *May 2022 - July 2022*
  - **Research Diagramming APIs**: Study of industry-ready diagramming APIs for integration with NOW platform.
  - **Development and Integration**: Developed and performed systems integration of Diagram Builder for UI Builder
  - **Impact**: The tool is now deployed and publicly available with over 1000 industrial clients.
  - **Stack Used**: Java, Maven, GraphQL, JavaScript
- **Unisoft**   Remote
  Software Development Intern (Summer Internship)   *May 2021 - July 2021*
  - **QR Code Library Development**: Developed and deployed a QR code reader and generator library, ground-up.
  - **Impact**: This library will evolve warehouse tracking and tracing as the primary mechanism used at all nine offices around the world.
  - **Stack Used**: Typescript, Flutter, NodeJS

Projects

- **Sketch.gen**: February 2024
  - **Purpose**: Developed Sketch.gen to aid in learning drawing, providing a user-friendly interface for generating text and hand-drawn sketches for educational purposes.
  - **Model Architecture**: Utilized a Sequence to Sequence Variational Autoencoder with a bidirectional LSTM encoder for encoding hand-drawn sketches into a latent space and decoding them back.
  - **Output of the Model**: Enabled sketch interpolation, encoding into latent space, and decoding with knob-controlled stroke length for diverse and unique sketch generation.
  - **Innovation**: Introduced user control for stroke length randomness, enhancing the variability of the generated sketches.

- **Multipath TCP (MPTCP) and WAN Aggregation**: December 2022
  - **Purpose**: Evaluated and drafted PoCs and system emulations for TCL - Tata Communications Limited to determine a feasible and viable MPTCP setup for their remote transmission services.
  - **Research outcome**: Added support and APIs for MPTCP in a Linux-based Network Simulator - NeST (FOSS) developed by NITK Surathkal, with over five academia patrons worldwide.
  - **Stack**: L3 - L7 Network Stack Emulations on Linux, Windows, Python

- **Integrated Healthcare Application in Real-Time (iHART)**: November 2021
  - **Purpose**: Started as a course project for analyzing SSDLC. Completed micro-service architecture serves as ERP for healthcare in NITK, with over 3000 active users daily. Digitizes healthcare data management, emergency services, and procurement for NITK.
  - **App development**: Documented and exposed backend APIs for mobile app, complete with auth, services, mailing, notifications, and third-party integration for services. Worked on state management for Flutter frontend application.
  - **Stack**: Django, Flutter, MySQL, Hive, Docker, Terraform, Azure

- **URJA - Solar Powered EV Charging Station**: June 2021
  - **Purpose**: URJA is a NITK initiative to promote use of EVs. This project aims to harness solar energy for charging EVs on campus and dissipate it on a charged basis.
  - **Tech lead**: Developed software for a Press PoC and refined it into a final product, mentoring a team of 4 members under two mentors and faculty members from Center of System Design (CSD) and IRIS NITK.
  - **Stack**: MQTT, JSON-APIs, Ruby on Rails, MySQL

- **64bit Single Cycle RISC-V CPU**: January 2021
  - **Purpose**: Started as a course project on optimizing raw RISC-V I-Set. Completed project was presented in a faculty-training webinar organized by the Ministry of Electronics and Information Technology (MeitY), Govt. of India.
  - **FPGA I-Set Coding**: Developed a single-stage single-cycle RISC-V CPU implemented in Verilog. Developed and presented a single-stage nPOWER CPU implemented in TL-Verilog with IBM Industry.
  - **Stack**: Verilog, TL-Verilog

Volunteer Experience

- **COMSNETS Conference 2023**   Bangalore, India
  Part of organizing committee. Managed shuttle services and welcome escorts.   *January 2023*

- **AIMLSystems Conference 2022**   Bangalore, India
  Part of organizing committee. Chaired location orchestration and front-desk management.   *October 2022*