AYUSH SINGHAI

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Professional Summary

Computer Engineering undergrad at IIIT Sri City with expertise in end-to-end system design: built and deployed microservices, real-time WebSocket apps, OCR/vision pipelines and multimodal AI models to solve complex problems at scale.

Education

Indian Institute of Information Technology (IIIT), Sri City   *Expected May 2026*
B.Tech in Computer Engineering
Relevant Coursework: Data Structures & Algorithms, DBMS, Machine Learning, Web Development

Experience

Full Stack Developer Intern – INVENT FOR CHANGE   *May 2024 – Aug 2024*
- Architected and implemented a React & Node.js web portal for secure document printing via Wi-Fi Direct/Bluetooth, including dynamic QR-code generation and scanning.
- Built backend microservices (Express.js) for job queuing, and used Redis streams for real-time status updates over WebSockets.
- Integrated Razorpay SDK for seamless payments; deployed on AWS EC2 with Docker, Nginx & Gunicorn, achieving 99.5% uptime.
- Automated PDF/DOCX parsing with LibreOffice headless mode and serverless AWS Lambda for on-demand format conversions.

Software Development Engineer Intern – Myrix Labs   *May 2025 – July 2025*
- Built and maintained RESTful APIs using Express.js to support core application features and integrations.
- Implemented secure authentication and authorization with JWT and OAuth2, enabling seamless user onboarding and access control.
- Optimized backend performance by improving query handling and introducing caching mechanisms, reducing response times by up to 30

Software Backend & AI Intern – OncoDisha   *Nov 2024 – Present*
- Extended NLP chatbot features with Hugging Face Transformers, adding context-aware follow-up questions for financial aid eligibility.
- Deployed conversational AI microservices on AWS EKS with horizontal autoscaling and A/B testing capabilities.
- Integrated OCR-based medicine detection pipeline using Tesseract and custom CNN classifiers to auto-extract prescription details.
- Monitored and optimized service performance with Prometheus alerts and Grafana dashboards, maintaining sub-5% error rates.

AI Research Intern – MULTIMEME
- Developed a multimodal meme classification pipeline: preprocessed images with OpenCV, extracted text via Tesseract & custom transformers, and generated joint CNN embeddings.
- Trained and fine-tuned vision-language models on a 50k-meme dataset (English, Hindi, code-mixed), boosting classification F1-score to 0.87.
- Packaged inference in a Flask microservice container, served at 50 FPS on CPU and 150 FPS on GPU; demonstrated real-time mobile integration on iOS.

Projects

Job Finder Platform w/ Blog   Cubicals-main
- End-to-end job portal with user auth, role-based dashboards, search filters, and blog CMS—built with Node.js, Express, React, MongoDB Atlas.
- Integrated JWT for secure sessions, Cloudinary for image hosting, and Multer for file uploads.
- Implemented notification microservice (RabbitMQ) and email workflows (Nodemailer).

OCR Text Extraction & Structuring   —
- Built robust OCR pipeline for Hindi/Devanagari: preprocessing with morphological ops, text recognition via Tesseract + fine-tuned transformers.
- Retained layout metadata—line spacing, fonts, special chars—and output structured JSON for downstream NLP analytics.
- Exposed via FastAPI endpoint with async workers, handling 500 concurrent requests.

3D Hand Gesture Recognition   —
- Enhanced 3D hand-pose estimation using custom bone-constraint losses on the FreiHAND dataset, reducing mean per-joint error by 15 mm.
- Implemented real-time inference on edge devices (Jetson Nano) at 30 FPS with <10 MB memory footprint.

Skills

- **Languages:** Python, Java, JavaScript, SQL, HTML/CSS
- **Frameworks:** Django, Flask, Node.js/Express, React
- **Databases:** PostgreSQL, MongoDB, MySQL
- **Cloud & DevOps:** Docker, Kubernetes, AWS (EC2, EKS, S3), Git, Nginx
- **AI/ML:** TensorFlow, PyTorch, OpenCV, Hugging Face Transformers, OCR pipelines

Certifications

- **Python Programming Certificate**: Completed comprehensive Python course. [View PDF]
- **Intermediate Web Development Certificate**: Mastered HTML, CSS, and JavaScript fundamentals. [View PDF]
- **Full-Stack Web Development Certificate**: Built dynamic MERN-stack applications from scratch. [View PDF]
- **Deep Learning Specialization (Coursera) – Andrew Ng**: Mastered neural networks, CNNs, RNNs, and sequence models. [View PDF]

Coding Profiles

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