Krish Goel

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EDUCATION

Manipal University Jaipur, Rajasthan, India   September 2022 – April 2025 *(Lateral Admit)*
Bachelor of Technology (Honours) in Computer Science Engineering with AI & ML   **GPA:** 8.86/10 [Dean's List]

- **Relevant Coursework:** OOP, DSA, RDBMS, Computer Architecture, Operating Systems, Multivariate Calculus, Linear Algebra, Probability & Statistics, Discrete Mathematics, Automata Theory, Computer Networks, Soft Computing, NLP, Computer Vision

Sanskriti School, Chanakyapuri, New Delhi, India   April 2017 – May 2021
High School (CBSE Curriculum – English, Physics, Chemistry, and Mathematics)   **Grade:** 95.6%

- **Relevant Coursework and Activities:** Physics, Chemistry, Calculus - 1, 2, 3, Vice President and Head of AI & IoT at the Tech and Entrepreneurship Club, Director of TechOps at Sanskriti Model UN, Member of the Students' Council

RESEARCH, WORK & LEADERSHIP EXPERIENCE

Machani Robotics, Bangalore, India   July 2024 – September 2024
AI Intern, Social Humanoids

- Solved for **"Pro-activity" of AI Agents** (Social Humanoids). Studied multiple research papers and **designed behaviour trees** with fuzzy logic to handle **multiple concurrent speakers, enable fully-duplex conversations, maintain user-specific context** and **RLHF from visual and audio inputs**.
- Built and implemented an **end-to-end real-time speaker diarization and transcription pipeline with voice-profiling** from scratch, exclusively using open-sourced models with **asynchronous operations**
- Deployed an **end-to-end facial profiling pipeline using Deepface and Google Mediapipe with DeepSORT Tracking**

Randomize(); The Official CSE Club at Manipal University Jaipur   May 2023 – April 2024
President, 250+ Member Team

- Revitalized the club by focusing on core technologies over "buzzwords", inviting **250+ Paid Members and 2500+ attendees**.
- Introduced **3 AI+Robotics Projects**: **Odysseus** (IEEE Micromouse), **Pathaan** (EEG-controlled Quadruped with a Turret), and **Quill** (Handwriting Recreation and Assignment Writing)
- Introduced **3 Minor Projects** (all deployed): **Market-Mood Index Ticker** (Proprietary ANN, deployed via Django), **Internal Tool for Administrative Paperwork Automation** (MERN), **Unified System of Design** for Promotional Content (Figma)
- Delivered **4 hands-on workshops** (**Building ANNs**, **Git**, **Fundamentals of AI**, **Competitive Programming**)

Epson Robotics, Bangalore, India   December 2023 – January 2024
Robotics Intern
Worked with Epson's industrial robots lineup - **6-Axis Arms and SCARA**. Contributed to the **integration of computer vision in SCARA's Feeder System** for a tailored client-site implementation.

Indian Council of Medical Research (ICMR), New Delhi, India   May 2023 – August 2023
Research Intern, Research manuscript under review Preprint with The Lancet (SSRN 4789897)
Led the development of a Clinical Trial Registry (CTR) while adhering to WHO-issued "International Standards for Clinical Trial Registries," under the guidance of Dr. Harpreet Singh. **Distributed to 70+ countries at G-20 Summit, Delhi 2023**.

Indian Institute of Science (IISc), Bangalore, India   August 2023
Research Intern, Contribution Accepted
Contributed to **data structuring for medical imaging datasets, enhancing data formats and accuracy** at MIDAS - research project at IISc, aimed at creating a centralized platform for "gold standard" medical data for better research and diagnostics.

RESEARCH PUBLICATIONS

Krish Goel and Mahek Chandak **"HIRO: Hierarchical Information Retrieval Optimization"**   June 2024
arXiv:2406.09979 (arxiv.org/abs/2406.09979)

Goel, Krish, Shweta Rana, Dr Prabudh Goel, and Harpreet Singh. **"Design and Development of an Open-Source Clinical Trial Registry (CTR) Template Aligned with Who International Standards"** *Available at SSRN 4789897.*   December 2023
Under Review, Preprints with The Lancet (SSRN 4789897)

TECHNICAL SKILLS

Programming: Python 3 (8 years), TypeScript (6 years), JavaScript, Data Structures and Algorithms

Software Development: Node.js, Next.js, SvelteKit, FastAPI, Django, Docker, Electron.JS, MongoDB, SQL, PostgreSQL, Google Firebase, Version Control, CI/CD, GitHub Actions, Kubernetes, Load Balancing (nginx), Vercel, AWS (EC2, Lambda, S3), Git Branching Strategies and Multi-environment Deployments

Neural Network Architectures: Transformers (Text and Visual ViT), Dense FFNs, RNNs, LSTMs, CNNs, GANs, GNNs, Ensembles

Language Models: Fine-tuning (RLHF, Supervised), Quantization, Distillation, Deployment to Production, LMOps, Reinforcement Learning, In-Context Learning, Transfer Learning, Retrieval-Augmented Generation (RAG), RALMs, NLP Pipelining, Agentic AI

Models: Meta Llama lineup, facial recognition models (DeepFace, FaceNet512, ArcFace), Pyannote voice models (Embedding, Diarization, Transcription), OpenAI Whisper voice models (Whisper, WhisperLive, WhisperX), DeepSORT and ByteTrack object tracking, embedding models (BERT, SBERT, GloVe, Word2Vec, custom embeddings), API access (OpenAI GPT lineup, Anthropic Claude)

Frameworks & Tools: PyTorch, Keras, scikit-learn, CrewAI, Google MediaPipe, Pinecone DB, LangChain

PROJECTS

Realtime Facial Profiling Pipeline July 2024
Side-Project (https://github.com/krishgoel/realtime-facial-profiling)
A real-time Facial Profiling Pipeline in Python with Google Mediapipe, DeepSORT Tracking, Deepface, Pinecone and MongoDB

krishgoel.com: Version 3 February 2024
Portfolio Webapp (https://krishgoel.com [Source Code])
Developed the third iteration of my portfolio using SvelteKit, TypeScript, and TailwindCSS. Includes a custom-built fully self-contained Markdown CMS and is deployed on Vercel, with automated data updatesn and CI/CD via GitHub Actions.

DoomScroll: Leveraging AI and Short-Form Content for Enhanced Educational Engagement among Gen-Z October 2023
Hackathon Project (https://github.com/KrishGoel/doomscroll)
Built an LLM-based short-video generation engine for creating highly-engaging educational content in 36 hours. DoomScroll aimed to leverage the 'Goldfish Attention Span' Crisis in Gen-Z, caused by short-form video content for education.

CovAID April 2021
Pandemic Emergency Relief Service (https://krishgoel.com/projects/covaid)
Co-founded CovAID, leading a team of 40 volunteers, to provide real-time, personally verified leads for all COVID-19 resources in Delhi and Kanpur during the height of the Pandemic. Deployed in less than 48 hours. Applauded by several newspapers and celebrities.

Eyena May 2020
Hardware Project (Documentation: https://eyena.krishgoel.com)
Eyena is an IoT-based smart mirror that measures your body temperature upon detecting your presence without any physical contact, built as a solution for health monitoring at public places in the aftermath of the pandemic.