

# Vighneshwar Kuru

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## About Me

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*ECE graduate with a focus on AI-driven embedded systems, exploring the intersection of hardware efficiency and intelligent algorithms*

## Projects

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### Anusandan-AI Companion

- Developed *Anusandan* – a patent-pending, offline AI companion robot using Python, Ollama (for local LLMs), Raspberry Pi, and custom speech recognition, designed for privacy-focused human-robot interaction in commercial environments.
- Tools used : Python, Ollama (LLMs), TensorFlow, NLP Raspberry Pi

### Generation of contactless ECG signals

- Developed a patent-pending, non-invasive ECG generation pipeline (Python/GANs) using optical PPG signals from fingertip video, eliminating need for physical electrodes.
- Tools Used: Python, GAN model, OpenCV, PyTorch

### Fine-Tuning an LLM

- Fine-tuned Meta's LLaMA 3.2 language model on structured SQL datasets using Unsloth with LoRA optimization, improving the model's ability to understand and generate SQL queries.
- Tools used: LLaMA 3.2, Unsloth, LoRA, Hugging Face Transformers, Google Colab (T4 GPU), PyTorch.

## Experience

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### Organizer | VLSI Hackathon, Anurag University

- Led a team of 10 to coordinate a **48-hour hardware hackathon** with 50+ participants, handling logistics, judging, and technical support.
- Curated challenges focused on **FPGA programming and embedded systems**, boosting hands-on learning in ECE domains.

### Robotics Workshop Volunteer

- Taught 20+ participants to build and program **ESP32-based robotic cars** from scratch, covering motor control, sensor integration, and wireless communication.
- Guided teams through troubleshooting hardware-software integration issues (e.g., signal latency, power management)

## Technologies

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**Languages:** C, Python, Java, HTML, CSS, Embedded C, VLSI

**Technologies:** Tensorflow, Pytorch, Keras, OpenCV, Gen AI, LLM, ES-IOT, Git.

## Certifications

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- AI Foundations (HP LIFE)
- Machine Learning with Python (freeCodeCamp)
- Cybersecurity Essentials (Cisco)

## Education

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Anurag University | BTech | Electronics and communications Engineering

2023-2027