Merunkumar

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Education

Kumaraguru College of Technology **Nov. 2022 – May 2026**

Bachelor in Mechanical Engineering (minors in IOT) *Coimbatore, Tamil Nadu*

Relevant Coursework

- Data Structures & Algorithm
- Data Analysis
- Web Development
- SolidWorks, Ansys
- *IIOT*
- Html, JS, CSS

Experience

a. **Aspire Leaders Program** – Alumni

b. **AINCAT & The Young Turks** – Participant

c. **Ignite Program** – Co-Lead

Projects

GROQ-PDF-CHATBOT | *Python, OCR, FAISS, Groq LLM (LLaMA 3/Mixtral)*

- Built a system to extract content from uploaded PDFs and answer user queries based on the document.
- Used PyMuPDF and Tesseract OCR to handle both text-based and scanned PDFs.
- Chunked and embedded text using Sentence Transformers, with FAISS for semantic retrieval.
- Integrated Groq-hosted LLaMA 3/Mixtral for generating context-aware answers.
- Designed a complete Retrieval-Augmented Generation (RAG) pipeline for intelligent Q&A.

IoT-Based Weather Prediction System | *Python, Pandas, Seaborn, Machine Learning*

- Designed a smart weather monitoring system using sensors to collect real-time data such as temperature and humidity.
- Transmitted sensor data to the cloud using IoT protocols for centralized storage and access.
- Used Python and Pandas to clean, process, and visualize the data, identifying trends and patterns using Seaborn.
- Trained a regression-based machine learning model on historical data to predict future weather conditions accurately.

File Compression Tool | *Huffman Encoding*

- Implemented a compression tool that reduces file size by assigning shorter binary codes to frequently occurring characters.
- Used Huffman Encoding logic in Python to ensure efficient storage without losing data quality during compression and decompression.
- Reduced the file size upto 40 percent of the original size

Personal Portfolio Website | *HTML, CSS ,JS*

- Created a responsive and interactive personal portfolio website to showcase my projects, technical skills, and resume.
- Used HTML for structure, CSS for styling, and JavaScript to implement dynamic interactions and smooth navigation.
- Designed the layout with cross-device responsiveness and accessibility in mind for a professional user experience.
- Integrated project links, contact form, and GitHub repositories to make the site functional and engaging.

Technical Skills

Languages: Python, R, C, HTML/CSS,JS
Developer Tools: VS Code, Google Colab
Technologies/Frameworks: GitHub, Google sites, Matplotlib, Adobe - Lightroom

Leadership / Extracurricular

***1*. StudioKCT – Photographer**
Captured and curated key campus events, improving storytelling and media production skills.

2. Trekking & Adventure Enthusiast
Developed mental resilience and teamwork through frequent outdoor exploration and physical challenges.

3. YRC Volunteer – Kumaraguru College
Engaged in blood donation drives, social awareness campaigns, and disaster relief efforts promoting social responsibility.

4. Fitness & Calisthenics
Committed to physical discipline and personal well-being through regular training and bodyweight workouts.

Awards & Certifications

1. MTA continental Scholarship Awardee (2022) 2. Data Analytics (Google) 3. CSWA -SolidWorks

Languages Known

1. Tamil (Native) 2. Japanese (N5) 3. English (Fluent)