Amrutha Kanakatte Ravishankar

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SKILLS

- **Programming Language:** Python, C++, C, Bash
- **AI & Machine Learning:** Scikit-learn, TensorFlow, PyTorch, Generative AI, LLM, Hugging Face Transformer, NLTK, Statistics, RAG, CUDA
- **Devops** Docker, Kubernetes, Terraform, CI/CD
- **Database:**SQL, MongoDB, Flask, FAISS, Redis
- **Frameworks & Tools:** Sentence Transformers, FAISS, Neo4j, FastAPI, OpenAI API, Git
- **Cloud:** AWS, GCP, Azure
- **Research Methods:** Experimental Design, Data Analysis, Literature Review, Prototyping, Quantitative Assessment

RESEARCH EXPERIENCE

Government-Funded Research Project, Karnataka, India August 2021 - October 2023
System Designer

- Led the design and prototyping of wearable tracker devices for the location of victims of natural disasters, funded by the Karnataka Government through KTech.
- Developed embedded systems and sensor integration for real-time location tracking in challenging environments.
- Collaborated with cross-functional teams to optimize power consumption and signal reliability in disaster conditions.
- Created and documented testing protocols for device performance evaluation in simulated disaster scenarios.
- Successfully delivered a functional prototype that demonstrated 85% precision in location tracking under adverse conditions.

WORK EXPERIENCE

FutureWave, Mysuru, India August 2021 - May 2022
Software Engineer Intern

- Led web development with collaborative coding, debugging and feature integration, re-inspection skills, achieving a 20% drop in app crashes and 15% higher user engagement.
- Contributed to cross-functional teams, improved code quality, and shortening the development cycle by 25 % through effective code reviews.
- Pioneered inventive solutions, web development, speeding up feature delivery, and reducing end-user bug reports by 30%.

EDUCATION

- **Stevens Institute of Technology**, Hoboken, NJ *Expected December 2025*
  Master of Science in Computer Science, CGPA: 3.85 / 4
  Coursework: Machine Learning, Natural Language Processing, Deep Learning, Statistical Machine Learning, Augmented Intelligence, Generative AI, Algorithms, Knowledge Discovery, and Data Mining, System Programming.
- **JSS Science and Technology University**, Mysuru, India *August 2023*
  B.E., Electronics and Communication Engineering, CGPA: 8.94/10

PROJECTS

- **RAG based Web Scraper:** *Febraury 2025*
  - FAISS was optimized for faster and more accurate vector search, leveraging Sentence Transformer embeddings for enhanced document retrieval.
  - OpenAI GPT-4 embeddings were used to match the meaning of web content, achieving high accuracy in semantic similarity matching.
  - LangChain was integrated with OpenAI GPT-4 for response generation and FAISS for fast document retrieval, streamlining the workflow.
  - A Flask-based UI was built to efficiently process user queries and provide real-time, relevant answers.

- **Medical Knowledge Assistance for Practitioners using RAG:** *December 2024*
  -Designed and developed an Retrieval Augmented Generation (RAG) system that uses FAISS for document retrieval and GPT-2 for response generation to assist medical practitioners.
  - Built the Agentic RAG model, integrating the PubMed API for retrieving relevant articles, improving the response accuracy for specialized medical queries.
  - Improved query processing speed by 40%, by optimizing sentence embeddings using Sentence Transformers.

- **CloudMart: Multi-cloud e-commerce platform** *August 2024*
  - Implemented a multi-cloud solution integrating AWS, Google Cloud, and Azure services for a scalable e-commerce platform, leveraging containerization.
  - Designed and deployed a secure CI/CD pipeline using GitHub, AWS CodePipeline, and Terraform, enabling automated infrastructure and continuous delivery of application updates.
  - AWS Lambda, DynamoDB, and S3 were used to create an event-driven data processing system. Google BigQuery was used to provide real-time analytics, enabling business intelligence capabilities.
  - Integrated OpenAI for improving AI capabilities including services and Azure Sentiment Analysis to enhance customer experience and provide actionable insights from unstructured data.

- **Intrusion and Anomaly Detection Using Deep Learning Techniques** *March 2024*
  - Data preprocessing and feature engineering techniques were conducted using Python and Numpy.
  - Built a recurring neural network (RNN) model with Pytorch for anomaly detection and deployed via Docker.
  - Integrated the model with FastAPI for fast and concurrent predictions, optimized loading, and ensured compatibility with the environment.
  - Deployed the Dockerized FastAPI app to Kubernetes, enabled autoscaling with Horizontal Pod Autoscaling, and set up a Load Balancer for efficient traffic distribution.

PUBLICATIONS

- **Systematic Review on Frameworks for Intrusion Detection using Machine Learning and Deep Learning Algorithms** - IEEE Conference: 2024 Second International Conference on Networks, Multimedia and Information Technology (NMITCON), DOI: 10.1109/NMITCON62075.2024.10699009

- **Karoke Audio Extraction using Matlab** - IJIRAE: International Journal of Innovative Research in Advanced Engineering, Volume 10, Issue 06, June 2023, DOI: 10.26562/ijirae.2023.v1006.35

- **Design of Energy Harvester using Piezoelectric Material** - IJARCCE: International Journal of Advanced Research in Computer and Communication Engineering Vol. 12, Issue 8, August 2023, DOI: 10.17148/IJARCCE.2023.12812