

# YATHISH SURESH

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LinkedIn — GitHub

## SKILLS

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**Programming & Frameworks:** Python, OpenCV, PyTorch, SQL, Git, Streamlit, Flask, Scikit-learn, Pandas, NumPy, Polars, FastAPI

**Machine Learning & AI:** Deep Learning, NLP, Natural Language Understanding (NLU), LLMs, Transformers, Seq2Seq, Attention, Fine-tuning, Prompt Engineering (few-shot, chain-of-thought), RAG (LangChain, LlamaIndex)

**AI/ML Techniques:** Exploratory Data Analysis (EDA), Data Cleaning, Feature Engineering, Mathematical Modeling, Full Lifecycle Analysis, Solution Design

**Computer Vision:** YOLOv8, 3D Computer Vision, Image and Video Analysis, Lighting Condition Analysis, Transfer Learning, Image Classification, Object Detection, Image Segmentation

**Cloud/DevOps:** AWS (EC2, S3, SageMaker), Google Cloud, Docker

**Tools and Libraries:** TensorFlow, PyTorch, Matplotlib, Seaborn, Tableau, Power BI, Hugging Face, OpenAI API

**Databases:** Relational Databases, SQL

## EDUCATION

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**M.S. in Data Science (Expected May 2026)**

College Park, MD

University of Maryland, College Park

2024 – 2026

**Postgraduate Program in Data Science & Business Analytics**

Online / Remote

Great Learning

2023 – 2024

**B.E. in Electronics & Telecom Engineering**

Bangalore, India

Dayananda Sagar College of Engineering

2018 – 2022

## EXPERIENCE

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**AI and Embedded Systems Research Engineer**

Synthesis Winding Technologies Pvt. Ltd

Nov 2022 – Aug 2024

Bangalore, India

- Developed and deployed AI-driven anomaly detection (image classification) models on Raspberry Pi achieving 95% accuracy, reducing manual quality checks by 70%.
- Built a complete CNC control system in Python featuring a custom G-code interpreter with linear and helical interpolation, S-curve acceleration, and real-time simulation.
- Designed a user-friendly CNC interface using Python's `tkinter`, enabling G-code execution, macro management, GPIO motor control, and position-speed visualization.
- Led a CNC automation project using LinuxCNC, Raspberry Pi, and ESP32 to enhance motion flexibility and modularity in small-scale winding machines.
- Engineered UDP-based communication in Python between machine and microcontrollers for real-time command execution and feedback.
- Designed a wire-cut detection system using Arduino Mega that improved machine uptime by 40% and reduced maintenance delays.
- Collaborated with senior engineers in Agile sprints and participated in iterative development and code reviews.
- Gratefully received a letter of appreciation from my manager for successful completion of the CNC automation project before my last day. *[View Letter]*

**AI Intern**

Ethical Den

Nov 2024 – Present

Remote

- Developing a Helmet Detection System for Kolkata roads using YOLOv8, identifying motorcyclists with or without helmets.
- Automating fine generation with AWS (EC2, S3), contributing to enhanced compliance enforcement and road safety.
- Integrated vision models with cloud-based pipelines to streamline monitoring and compliance.
- Conducted full lifecycle analysis including requirements gathering, solution design, and model development.
- Working on AI agents to automate businesses.

**ML Intern**

Analogica Softwares Pvt. Ltd

Jan 2021 – Jul 2021

Bangalore, India

- Built a sentiment-based book recommendation system using NLP and KNN, deployed via Streamlit.
- Developed an eBook genre classification model with Python and NLP.

## PROJECTS

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### LLM Research Chatbot Assistant

2024

Personal Project

GitHub

- Designed and implemented LLM-based solutions for research assistance, including fine-tuning and prompt optimization to extract insights from academic PDFs.
- Integrated LangChain for Retrieval-Augmented Generation (RAG), enabling dynamic document querying.
- Performed exploratory data analysis (EDA) on document embeddings to identify topic clusters and trends.
- Deployed with Streamlit and Google Cloud, featuring a user-friendly UI for bulk paper uploads and theme summarization.

### Healthcare AI – Heart Disease Prediction

2023

Academic Project

Streamlit Cloud

- Developed a web-based ML system using logistic regression to assess heart disease risk from medical history and lifestyle data.
- Used Pandas, Polars, one-hot encoding, and Scikit-learn; deployed with Streamlit for public access.

### Sentimental Books Recommendation System

2021

Academic Project

Heroku

- Built a hybrid book recommendation system using NLP sentiment analysis and KNN-based collaborative filtering.
- Deployed using Heroku; used Scikit-learn, Pandas, and Pickle for model development and storage.

## BLOGS AND TECHNICAL WRITING

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**Simplifying LSTM with Visualization:** Wrote a medium blog post demystifying LSTM networks using intuitive analogies and heatmap simulations, bridging toward seq2seq, attention, and Transformers.

Read: [Link](#)

## LEADERSHIP AND ACTIVITIES

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**Event Coordinator, UMD Competitive Coding Club:** Coordinated full-stack web app sessions with GES interns.

**Volunteer, CS Career and Internship Fair UMD:** Facilitated networking for 45+ students with 20+ tech recruiters.

## PUBLICATION

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”Energy Management for Home Automation Using AI” (2022) – Published in iJRASET

## CERTIFICATIONS

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Machine Learning Engineer – Certisured

Machine Learning (Coursera)

Python Bootcamp (Udemy)

SQL for Data Science – In Progress