






Gouthamaan Manimaran

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Highly analytical individual with strong communication, good business acumen, programming and intuition skills. Looking to not just fill a role in the Artificial Intelligence sector, but also keen on developing innovative technologies in my field.

Education

Amrita University - M.Tech <i>Artificial Intelligence 9.0 GPA</i>	Amritapuri, KL 2020–2022
Coursework: Linear Algebra, Machine Learning, Deep Learning, Quantum Computing	
SRM University - B.Tech <i>Electronics and Communication Engineering 7.0 GPA</i>	Chennai, TN 2016–2020
Coursework: Control Systems, Discrete Math, Statistics and Probability, Core Electronics	
GEAR Innovative International School <i>High School (12th-CBSE) 83%</i>	Bangalore, KA 2014–2016
Cambridge Public School <i>High School (10th-ICSE) 88%</i>	Bangalore, KA 2010–2014
Activities: State-level Swimmer, Captain of the Cricket Team	


Experience


Technical University of Denmark <i>PhD Researcher</i>	Copenhagen, DK Jan 2023–Dec 2025
– Working on ECG signal processing using deep learning to find anomalies that can indicate a failing heart	
Philips <i>Deep Learning Research Intern</i>	Bangalore, KA Aug 2021–July 2022
– Developed an annotation tool with a deep learning backend to easily annotate video frames as well as evaluate these manual annotations using semi supervised methods - Published two papers at EMBC'22.	
– Investigated methods to model an ultrasound fetal heart cycle and worked with temporal action detection models to achieve this.	
– Programmed an Oriented Object Detection model to find the mid-sagittal line of the heart	
L&T Technological Services <i>Project Intern</i>	Chennai, TN Dec 2018–Jan 2019
– Worked on image processing in industrial IP camera and GenICam	
– Investigated algorithms pertaining to MIPI CSI and defect pixel correction	

Publications

Reading Between the Leads: Local Lead-Attention Based Classification of ECG Signals <i>(Accepted) Proposed a novel architecture for Classification of ECG signals using Attention Mechanism.</i>	CinC'23
Focal-WNet: An Architecture unifying convolution and attention for Depth Estimation <i>(Accepted) Proposed a novel architecture to solve Monocular Depth Estimation.</i>	IEEE I2CT'22
Evaluation Tool to Diagnose Faults and Discrepancy in semi-automated or Manual Annotations in Ultra-sound <i>This is a proposal for an algorithm that can evaluate your ground truth annotations which is much needed for medical imaging as annotators are not experts in the field. This algorithm can pinpoint the anatomy/object in an image which has been annotated wrong in a dataset.</i>	EMBC'22
Implementation Of 5-qubit approach-based Shor's algorithm in IBM Qiskit Best Paper Award. <i>Demonstrated Shor's algorithm with lesser amount of qubits in a quantum computer and effectively found the factors of the number 21 and 35.</i>	IEEE PuneCon'21

Skills

 **Expert:** Python (Pandas, Numpy), Deep Learning - PyTorch/Tensorflow, Machine Learning (sci-kit), Computer Vision, OpenCV, Critical Thinking

 **Proficient:** Data Mining, SQL, NLP, Data Visualization, Robotics

Certifications

- Machine learning in python UdeMy
- Advanced Natural Language Processing UdeMy
- Deep Learning in Python DataCamp
- Tensorflow Developer Specialization DeepLearning.ai - Coursera
- Deep Learning for NLP DataCamp
- Advanced Computer Vision: GAN, SSD, etc UdeMy
- Data science Specialization Offline Course
- Robotics: Perception Coursera
- Deep Reinforcement Learning UdeMy
- Databases and SQL for Data Science with Python Coursera

Projects

Investigation of Power Spectrum Density and Energy Efficiency of a cooperative communication DF network
Optimized SE,EE using Multi layer Perceptron to find best routing paths in a cooperative network

Document Digitization-Text Recognition

This project aims at detecting recognizing and classifying characters from PID diagrams for the purpose of digitization of documents in industries using Deep learning algorithms such as CNN, Mask RCNN and image processing libraries like OpenCV.

Conversational Chatbot

This project was created in PyTorch using bidirectional GRUs with 10 time-steps using a dataset of hundred thousand lines of dialogues from movies

Monocular Depth Estimation

This is part of my thesis work at college. Created a novel model (Focal-WNet) to perceive depth from single RGB Images - Currently trying to push it to being state of the art.

Extra-Curricular

Participations & Sports

- State-Level Swimmer U-16
- Captained my high school's cricket team and co-captained the football team
- Participated and got high ranking in many hackathons in Kaggle, MachineHack, AnalyticsVidhya.

Interests

- Artificial Intelligence related applications
- Astrophysics
- Orbital Mechanics
- Aerospace Technology