

# Malavika Dilu

Ernakulam, Kerala | dilumalavika@gmail.com | 80892 03677 |

linkedin.com/in/malavika-dilu | github.com/MalooD-Lu

## Education

- **National Institute of Technology, Warangal** 2021–2025  
*B.Tech, Electronics and Communication Engineering*
- **Gulf Indian School** 2020  
*AISSCE, CBSE Class 12*  
Percentage: 94.6%
- **Gulf Indian School** 2018  
*AISSE, CBSE Class 10*  
Percentage: 92.8%

## Experience

**National Health Research Institutes, Taiwan** May 2024 – August 2024  
*ML Research Intern* Miaoli, Taiwan

- Implemented YOLOv7 to detect zebrafish with 88% precision and 92% recall, outperforming traditional methods (e.g., Kalman filters) by 10% accuracy.
- Designed a stereovision pipeline using OpenCV and PyTorch to extract 3D coordinates (RMSE: <0.05m), enabling analysis of spatial movement patterns.
- Built an interactive PyQt5 dashboard to visualize dynamic trajectories, reducing manual tracking time by 30%.

**Independent Research Intern** May 2023 – April 2024  
*ML intern under Dr.Murugappan* Remote

- Researched early detection of Diabetic Foot Ulcers (DFU) using thermogram images via TensorFlow/OpenCV, improving segmentation accuracy by 15%.
- Preprocessed and augmented thermal imaging datasets (1000+ images) using CLAHE and wavelet transforms to enhance feature extraction.

## Personal Projects

### OpenAI's Whisper for Automated Grammar Scoring

[github.com/OpenAI-Whisper-for-grammar-score](https://github.com/OpenAI-Whisper-for-grammar-score)

- Fine-tuned OpenAI's Whisper (ASR model) to transcribe spoken English, then analyzed transcripts using spaCy/NLTK for grammar error detection.
- Implemented a rule-based scoring system (0–100 scale) by comparing parsed sentences against grammatical rules, achieving 85% agreement with human evaluators.

### IoT Based Commercial Beekeeping Technology

[github.com/IoT-Based-Bee-keeping](https://github.com/IoT-Based-Bee-keeping)

- Developed sensor-based technology for monitoring beehive conditions and improve honey production using ESP32.
- Monitored parameters like temperature, humidity, weight, etc., and processed the data using machine learning.

### Performance Analysis of Q-OFDM and Q-OTFS for 6G Communication

- Analysis of communication networks to improve OFDM and OTFS using MATLAB and further enhancing its performance by introducing quantum computing analysis using QISKIT.

## Technical Skills

**Programming:** Python (TensorFlow, PyTorch, scikit-learn), SQL, R, Java, C++ , Matlab

**Development:** HTML, CSS, Git, Arduino, PyQt5, Raspberry Pi, Flask, Node.js, RESTful API, MongoDB, HTTP, Azure

**Coursework:** Data Structures and Algorithms, DBMS, IoT, OOPs, Computer Vision (YOLO, OpenCV), NLP, LLMs, Time-Series Forecasting (LSTM)

**Data Tools:** Pandas, NumPy, Matplotlib, Seaborn

**Soft Skills:** Leadership, Teamwork, Time Management, Problem Solving, Creativity, Communication, Adaptability, Analytical Thinking