

# Antonio Roger

GitHub | antonioroger.dop@gmail.com | Portfolio | LinkedIn

Aspiring AI student passionate about problem-solving, innovation, and applying AI technologies to build impactful solutions. Experienced in AI-driven, enthusiastic about continuous learning and creative problem-solving.

## EDUCATION

<b>B.Tech in Computer Science (AI)</b> Amrita Vishwa Vidyapeetham , Coimbatore	2023 – Present
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## SKILLS

- Programming Languages:** C, Python, C++(Basics)
- Web-development Frameworks:** MERN Stack (MongoDB, Express, React, Node.js), Flutter
- Machine Learning & Tools:** PyTorch, DGL, Scikit-learn, OpenCV, TensorFlow
- Embedded Systems & IoT:** Arduino, NodeMCU, Raspberry Pi, ESP32
- Databases & Cloud:** MongoDB, Firebase, MySQL
- Version Control & DevOps:** Git, GitHub, Vercel deployment

## EXPERIENCE

<b>App Development Lead</b> – Intel IoT Club, Amrita	Jun 2024 – Present
<i>Web &amp; App Developer</i> - Contributed to multiple club projects, leading the App Development vertical and serving as Tech Head for a NASSCOM incubated student startup through club initiative.	
<b>Web &amp; Technical Expert</b> – TEDx Amrita University Chapter	Jan 2025 – Present
<b>Photographer</b> – Team Media, Amrita	Sep 2023 – Present

## WORKSHOPS & CERTIFICATIONS

<b>DATA STRUCTURES AND ALGORITHMS WITH JAVA</b> NPTEL	Aug 2025 – Nov 2025
<b>TDEP: Drones &amp; Industrial Robots</b> PSG College of Technology	Jun 2024 – Jul 2024
<b>Embedded Electronics: Sensor-MCU Integration for IoT Applications</b>	Apr 2024 – May 2024

## ACADEMIC PROJECTS

- Cardiovascular Disease Prediction using PPG-GAN** [GitHub]
  - Designed an end-to-end deep learning platform for cardiovascular risk assessment using Photoplethysmography (PPG) signals.
  - Leveraged GANs for ECG signal enhancement and feature augmentation, improving predictive robustness.
  - Integrated model inference with a web-based health monitoring dashboard.
- Conformer-Based Automatic Speech Recognition (ASR)** [GitHub]
  - Implemented state-of-the-art Conformer architecture in PyTorch for end-to-end ASR on LibriSpeech.
  - Built a 12-layer encoder combining multi-head self-attention and depthwise separable convolutions.
  - Optimized training using CTC loss, Automatic Mixed Precision (AMP), and OneCycleLR scheduling.

- **Music Generation using RNN-LSTM**

[GitHub]

- Built a sequence-to-sequence model using RNN and LSTM to generate MIDI-based musical compositions.
- Trained on symbolic music data to learn temporal patterns and composer-style representations.

- **TCP-Based IP Video Call System**

- Implemented real-time peer-to-peer video communication using socket programming over TCP/IP.
- Enabled live video streaming with synchronized frame transmission and reception.

- **Virtual Mouse Control using Computer Vision**

- Designed a gesture-controlled virtual mouse system using OpenCV and ESP32-CAM.
- Facilitated human-computer interaction through real-time hand landmark detection.

- **Robotics – Two-Wheeled Self-Balancing Bot (TWSB)**

[GitHub]

- Engineered a self-balancing robot using PID control for dynamic stability and autonomous navigation.
- Integrated sensor fusion and path planning algorithms for real-time motion control.

## ACHIEVEMENTS

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### Runner-Up, Cisco Cohort7 Hackathon

April 2025

Ranked among the top 20 out of 1,600 teams, securing a runner-up position, earning exclusive incubation from Cisco's NASSCOM Foundation with support from the Intel IoT Club, and placing in the top 1% of participants.