

SUMADHWA V

+91-9113679843 | sumadhwarao2005@gmail.com

LinkedIn: linkedin.com/in/sumadhwa-rao-v-b85b4b357 | GitHub: github.com/sumadhwa3009

PROFESSIONAL SUMMARY

Electrical and Electronics undergraduate with hands-on experience in Embedded C, Verilog and MATLAB Simulink. Strong foundation in Digital Electronics, VLSI fundamentals, circuit debugging and system validation. Interested in semiconductor hardware design, embedded systems and SoC development. Seeking to leverage expertise in semiconductor hardware design and SoC development to contribute to the real world.

TECHNICAL SKILLS

Programming	: Embedded C, Verilog, C, C++, Python
Hardware Platforms	: ATmega328, ESP32-S3, Raspberry Pi, STM32
Engineering Tools	: MATLAB, Simulink, Multisim, LTSpice, KiCad
Core Areas	: Digital Electronics, Analog Electronics, VLSI Fundamentals, Embedded Systems, Power Electronics, Digital Design
Soft Skills	: Communication (English, Kannada & Hindi), Problem-Solving, Debugging, Team Management, Collaboration

PROJECTS

Audio-Visual zooming using Adaptive Beamforming

- Developed a real-time audio-visual zooming system combining adaptive beamforming with camera tracking to enhance target speech while suppressing off-axis noise.
- Integrated 6+1 MEMS microphone array, ESP32-S3 and Raspberry Pi for multi-channel I2S audio acquisition and real-time signal processing.
- Implemented adaptive beamforming algorithms in MATLAB and Python, dynamically adjusting beam width based on camera field-of-view.
- Built a Flutter-based interface to synchronize audio processing with camera zoom control.
- Further, we are working on developing our own PCB, integrating all features in ONE board.

Artificial Intelligence and Machine Learning Based Load Forecasting System

- Developed Machine Learning models to predict electricity demand using advanced feature engineering techniques (calendar, lag and roll feature) and weather patterns.
- Implemented and evaluated multiple machine and deep learning models and comparing performances using standard metrics (MAE, MAPE and RMSE) to identify most accurate forecasting approach.
- Also built an interactive Streamlit dashboard for real-time prediction, visualization and model comparison.

EDUCATION

- B.E in Electrical and Electronics Engineering
BMS Institute of Technology and Management (2023-2027) | CGPA: 9.14/10
- PUC - Karnataka State Board - Government (Ex Municipal) PU College (2021-2023) | 93.50%
- SSLC - Karnataka State Board - Adarsha Vidyalaya (RMSA) (2021) | 93.75%

CERTIFICATIONS

- MATLAB, Simulink, Simscape, Circuit Onramp – MathWorks
- Fundamentals of AIML

ACHIEVEMENTS

- Secretary and Webmaster, IEEE Power & Energy Society Student Branch – BMSIT&M
- Overall Winners – CODERED 2025 (24-hour National Hackathon) for the project "Audio-Visual Zooming using Adaptive Beamforming" and Second Runner Ups – SPECTRE 2026 for Audio Localization – "AURORA" project.