Milav Jayeshkumar Dabgar

Engineering Educator & R&D Professional

Innovation Leader • Full-Stack Developer • AI/Data Science Practitioner

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Executive Summary

Engineering educator and R&D professional with **9+ years** of comprehensive experience spanning electronics hardware development, embedded systems, AI/ML, and full-stack software engineering. Currently pursuing **BS in Data Science and Applications from IIT Madras** (Diploma in Programming completed with distinction). Distinguished by exceptional student mentorship that enabled teams to secure **Rs. 45+ lakhs in innovation funding** (Rs. 25 lakhs from Shark Tank India, Rs. 20 lakhs from iHub Gujarat), resulting in **2 student patents**. Proven expertise in bridging academia-industry gap through innovative teaching methodologies, self-hosted infrastructure development, and real-world system implementation. Seeking AICTE Industry Fellowship to gain advanced industrial research experience and enhance diploma-level innovation ecosystem in Gujarat.

Professional Experience

Lecturer (Class - II) & Innovation Leader — **Nov 2016 – Present**
Government Polytechnic, Education Department - Government of Gujarat — *Palanpur, Gujarat*

- Lead comprehensive technical education across Programming in C, Microprocessor Programming, Embedded Systems, Circuit Design, Consumer Electronics, and Entrepreneurship
- Hold key institutional positions: **IT Convener** (infrastructure strategy), **SSIP Co-Convener** (startup ecosystem), **Training & Placement Member**, and active contributor to MIS and UDAYAM initiatives
- Achieved remarkable student success: mentored teams securing **Rs. 25 lakhs from Shark Tank India** and **Rs. 20 lakhs through government innovation programs**, resulting in **2 student patents**
- Architected and deployed comprehensive **Next.js Academic Management System** at gppalanpur.in with production-grade CI/CD pipeline, featuring complete institutional management with CSV import/export, advanced search/filter/sort capabilities, and automated feedback analysis
- Developed student portfolio system with LinkedIn-style public profiles, downloadable biodata/resume/CV generation, interactive newsletters with PDF/HTML export, and comprehensive paper solutions for ECE/ICT/IT branches in English/Gujarati
- Designed enterprise-grade infrastructure: self-hosted Linux servers, Dockerized microservices, CI/CD pipelines, and automated backup systems

Electronics & Communication Engineer (R&D) — **Jul 2015 – Oct 2016**
TEXEG India Private Limited (Japan-based Technology Firm) — *Gandhinagar, Gujarat*

- Led end-to-end product development lifecycle for commercial embedded systems in international R&D environment
- Executed circuit simulation, PCB design, firmware development, and control systems implementation
- Designed control algorithms (PID, PI, Fuzzy Logic) using MATLAB Control System Toolbox for industrial applications
- Delivered complete embedded solutions from concept to production, supporting cross-functional mechanical engineering teams

Research & Development Intern — **Aug 2014 – Jul 2015**
eiTRA - eInfochips Training & Research Academy Ltd — *Ahmedabad, Gujarat*

- Gained comprehensive foundation in embedded systems research methodologies and industry best practices
- Developed proficiency in advanced debugging techniques and hardware-software integration strategies

Education

Bachelor of Science (BS) in Data Science and Applications — **2021 – Present**
Indian Institute of Technology Madras (IIT Madras) — *Roll No: 21F1005510 | Overall CGPA: 7.07/10*

- **Foundation Level:** Completed (32/32 credits, CGPA: 7.50/10) - Strong performance in Computational Thinking, Mathematics for Data Science, and Programming in Python

- **Diploma Programming Track:** Completed (27/27 credits, CGPA: 7.19/10) - Database Management, Data Structures & Algorithms, Modern Application Development I & II with project work
- **Diploma Data Science Track:** In Progress (21/27 credits, CGPA: 6.24/10) - Machine Learning Techniques, Business Analytics, Business Data Management
- **Current Status:** 80/142 credits completed toward full degree | Final phase coursework in Machine Learning Practice and Business Data Management projects

Master of Engineering(ME), Communication Systems **2013 – 2015**
L.D College of Engineering, Gujarat Technological University *Ahmedabad, Gujarat | CGPA: 8.04/10*

- Specialized in Digital Signal Processing, Wireless Communications, and Advanced Communication Protocols

Bachelor of Engineering(BE), Electronics & Communication **2009 – 2013**
Sal Institute of Technology and Engineering Research, Gujarat Technological University *Gujarat | CGPA: 7.28/10*

- Foundation in Electronics Design, Embedded Systems, and Communication Technologies

Technical Expertise

Programming Languages:

- Java, Python, JavaScript (ES6+), C/C++
- R, SQL, Assembly Language
- HTML5, CSS3, Markdown

Web & Full-Stack Development:

- Next.js, React.js, Vue.js 3
- Node.js, Express.js, Flask, FastAPI
- RESTful APIs, JWT Authentication
- SQLite, MongoDB, PostgreSQL

Data Science & Machine Learning:

- TensorFlow, PyTorch, Scikit-learn
- Pandas, NumPy, Matplotlib, Seaborn
- Computer Vision, NLP, Deep Learning
- Recommender Systems, Clustering

Infrastructure & DevOps:

- Linux Server Administration (Ubuntu, CentOS)
- Docker, CI/CD Pipelines
- Git Version Control, GitHub Actions
- Self-hosted & Cloud Solutions

Embedded Systems & Hardware:

- 8051, PIC, AVR Microcontrollers
- STM32, Arduino, Raspberry Pi, ESP8266
- EagleCAD, Altium, OrCAD, KiCAD
- Multisim, Proteus, LTspice

Engineering Tools & Platforms:

- MATLAB, Simulink, Control Systems
- FPGA Design, Verilog, Digital Design
- Signal & Image Processing
- Modbus Protocol, Industrial Automation

Key Projects & Innovations

Smart Academic Portal | ***Next.js, React, Docker*** **2025 – Present**

- Production-ready academic management system deployed at gppalanpur.in serving Government Polytechnic Palanpur with complete institutional infrastructure management
- Comprehensive admin dashboard with user/role management, CSV import/export, advanced filtering/sorting, automated feedback analysis, and multi-format report generation
- Student portfolio system with LinkedIn-style public profiles, downloadable resume/CV generation, interactive newsletters, and extensive paper solutions repository for ECE/ICT/IT branches in English/Gujarati
- Enterprise-grade deployment with self-hosted infrastructure, CI/CD pipelines, zero-downtime deployments, and collaborative development with student contributors

Personal Blog & Portfolio | ***Hugo, Blowfish Theme, Markdown*** **2024 – Present**

- Self-hosted personal website at milav.in featuring comprehensive blog, portfolio showcase, and educational resource repository
- Developed extensive study material collection with paper solutions for ECE/ICT/IT branches available in both English and Gujarati languages
- Implemented modern static site architecture using Hugo framework with responsive Blowfish theme for optimal performance and user experience

System Threat Forecaster | ***Python, Machine Learning, Data Analysis*** **2024 – 2025**

- Developed comprehensive machine learning pipeline for system threat prediction and cybersecurity risk assessment
- Implemented advanced data analysis and predictive modeling techniques using Python, TensorFlow, and Scikit-learn
- Applied pattern recognition and anomaly detection algorithms for real-time threat identification
- Demonstrated practical application of IIT Madras Machine Learning coursework in cybersecurity domain

Scarlett Web Application (MAD2) | ***Vue.js, Flask, PostgreSQL*** **2023 – 2024**

- Enhanced platform with modern Vue.js 3 frontend and advanced backend processing
- Implemented microservices-style API structure with dedicated modules for comprehensive functionality
- Integrated Celery with Redis for asynchronous task handling and background processing capabilities
- Built comprehensive analytics and reporting system with Chart.js visualizations and real-time data

FPGA Image Steganography | ***FPGA, Verilog, DSP*** **2014 – 2015**

- Developed hardware implementation of YASS (Yet Another Steganographic Scheme) for secure communication
- Implemented resistance to blind steganalysis attacks using advanced algorithms
- Published in International Journal of Computer Applications - View Research Paper

Professional Certifications & Achievements

Student Innovation Mentorship Excellence **2018 – Present**

- Established comprehensive innovation pipeline from ideation to commercialization, mentoring 50+ student projects
- Guided breakthrough projects: IoT-based smart agriculture system, autonomous drone delivery platform, embedded automation solutions
- Achieved exceptional funding success: **Rs. 25 lakhs from Shark Tank India** and **Rs. 20 lakhs from government innovation programs**
- Resulted in **2 filed patents** and multiple technology transfer opportunities with industry partners

NPTEL Excellence & Recognition **2018 – Present**

- **NPTEL EVANGELIST** (Dec 2020) - Top recognition for exceptional contribution to online learning ecosystem
- **NPTEL DISCIPLINE STAR - Computer Science** (Dec 2019, Dec 2020) - Top 1% performer nationally
- **24 Course Completions with 15 Elite Performances** - Demonstrating mastery across AI, Data Science, and Programming domains

Coursera Specializations **2016 – Present**

- **Advanced Machine Learning:** Deep Learning, Computer Vision, NLP, Reinforcement Learning, Bayesian Methods
- **Core Specializations:** Machine Learning, Deep Learning, Recommender Systems, Data Structures & Algorithms
- **Big Data & Analytics:** Big Data, Data Mining, Cloud Computing, Business Analytics

Professional Objectives

Immediate Goal: Secure AICTE Industry Fellowship to gain advanced industrial research experience in AI, embedded computing, or system design, bridging academic excellence with industry innovation

Long-term Vision: Pursue PhD in AI/Embedded Computing/System Design from premier institution while establishing Gujarat as a leading hub for diploma-level innovation and research-driven education

Impact Mission: Transform technical education landscape by integrating industrial rigor with academic excellence, fostering sustainable innovation ecosystems, and creating scalable models for interdisciplinary collaboration