

# 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 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

## Professional Experience

### Lecturer (Class - II) & Innovation Leader

*Government Polytechnic, Education Department - Government of Gujarat*

**Nov 2016 – Present**

*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](https://gppalanpur.in) with production-grade CI/CD pipeline, featuring complete institutional management (Users, Roles, Institutes, Departments, Programs, Buildings, TimeTable, Committees) with CSV import/export, advanced search/filter/sort capabilities, and automated feedback analysis with report generation
- 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 with multi-format export capabilities
- Designed enterprise-grade infrastructure: self-hosted Linux servers, Dockerized microservices, CI/CD pipelines, and automated backup systems
- Transformed institutional technology landscape while fostering innovation culture and industry partnerships

### Electronics & Communication Engineer (R&D)

*TEXEG India Private Limited (Japan-based Technology Firm)*

**Jul 2015 – Oct 2016**

*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
- Contributed to innovative product portfolio serving global markets with cutting-edge automation solutions

#### Research & Development Intern

*eiTRA - eInfochips Training & Research Academy Ltd*

Aug 2014 – Jul 2015

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

## 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
- Redis, Celery, Elasticsearch

#### 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
- CAD Tools, Circuit Simulation
- Modbus Protocol, Industrial Automation

## Education

#### Bachelor of Science (BS) in Data Science and Applications

*Indian Institute of Technology Madras (IIT Madras)*

2021 – Present

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

*L.D College of Engineering, Gujarat Technological University*

2013 – 2015

Ahmedabad, Gujarat | CGPA: 8.04/10

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

#### Bachelor of Engineering(BE), Electronics & Communication

*Sal Institute of Technology and Engineering Research, Gujarat Technological University*

2009 – 2013

Gujarat | CGPA: 7.28/10

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

## Professional Certifications

#### Coursera Specializations

2016 – Present

- **Advanced Machine Learning:** Introduction to Deep Learning | Data Science Competition | Bayesian Methods | Reinforcement Learning | Computer Vision | NLP | LHC Machine Learning
- **Machine Learning:** ML Foundations | ML Regression | ML Classification | ML Clustering & Retrieval
- **Deep Learning:** Neural Networks & Deep Learning | Hyperparameter Tuning | ML Projects | CNNs | Sequence Models

- **Recommender Systems:** Non-Personalized Systems | Collaborative Filtering | Evaluation & Metrics | Matrix Factorization | Capstone Project
- **Data Structures and Algorithms:** Algorithmic Toolbox | Data Structures | Algorithms on Graphs | Algorithms on Strings | Genome Assembly
- **Big Data:** Introduction to Big Data | Big Data Modeling | Big Data Integration | ML with Big Data | Graph Analytics
- **Data Mining:** Data Visualization | Text Retrieval | Text Mining | Pattern Discovery | Cluster Analysis
- **Cloud Computing:** Cloud Systems & Infrastructure | Big Data Applications in Cloud
- **Android Development:** Java for Android

#### NPTEL Excellence & Recognition

2018 – Present

- **Foundations of Computing:** Discrete Mathematics (2021) | Design and Analysis of Algorithms (2020) - Elite | Programming, Data Structures and Algorithms Using Python (2020) - Elite | Computer Graphics (2020)
- **Systems Domain:** Operating System (2020) - Elite | Computer Networks and Internet Protocol (2018) | Database Management System (2020) - Elite | Introduction to Internet of Things (2018) - Elite | Cloud Computing (2020) - Elite | Computer Architecture and Organization (2020)
- **Programming Languages:** Programming in Java (2020) - Elite + Gold | Joy of Computing Using Python (2019) - Elite + Silver | Introduction to R Software (2019) - Elite + Silver
- **Machine Learning & AI:** Introduction to Machine Learning (2019) - Elite + Silver | Deep Learning - Part 1 (2019) - Elite + Silver | Reinforcement Learning (2019) - Elite
- **Data Science & Analytics:** Data Science for Engineers (2019) - Elite + Silver | Business Analytics and Data Mining Modeling Using R (2019) - Elite + Silver | Business Analytics & Data Mining Modeling Using R - Part II (2018) - Elite | Business Analytics & Text Mining Modeling Using Python (2019) - Elite + Silver | Business Statistics (2019) - Elite | Scalable Data Science (2018)
- **Industry 4.0 & IoT:** Introduction to Industry 4.0 and Industrial IoT (2019) - Elite

#### Udemy Professional Development

2017 – Present

- **CCNA Routing and Switching** - Network Infrastructure, Routing Protocols, Switching
- **Machine Learning and Data Science** - Python & R for Data Science, ML Applications
- **Complete Python Masterclass** - Python Programming, Applications, Best Practices
- **Complete JavaScript Course** - Web Development, JavaScript Programming
- **MBA in 1 Course** - Business Fundamentals, Management Principles

## Key Projects & Innovations

#### Smart Academic Portal | *Next.js, React, Docker*

2025 – Present

- Production-ready academic management system deployed at [gppalanpur.in](http://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](http://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
- Created structured content management system for technical blogs, project documentation, and educational resources with multilingual support

#### 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
- Developed RESTful API following industry best practices with JWT-based authentication system

### Scarlett Web Application (MAD1) | *Flask, SQLAlchemy*

2022 – 2023

- Developed comprehensive web application for household service booking with multi-role system
- Implemented three distinct user roles (Customer, Professional, Admin) with specialized interfaces and permissions
- Built professional verification system with customer review, rating functionality, and document upload capabilities
- Integrated Flask-Security for robust authentication, authorization, and role-based access control
- Created comprehensive admin panel for user verification, service management, and system statistics

### 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
- Utilized FPGA technology for real-time image processing and steganographic embedding
- Published in International Journal of Computer Applications - [View Research Paper](#)

### Wireless Data Acquisition System | *Modbus, Embedded Systems*

2012 – 2013

- Designed multi-device wireless monitoring and control system for industrial applications
- Implemented Modbus protocol for reliable communication with up to 255 devices
- Developed real-time data processing capabilities for industrial monitoring and environmental sensing
- Applied in process control, environmental monitoring, and industrial automation systems

## Achievements & Recognition

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### 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
- Created sustainable mentorship model adopted across multiple institutions in Gujarat

### 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
- **NPTEL ENTHUSIAST & MOTIVATED LEARNER** (Dec 2019, Dec 2020) - Consistent excellence in learning
- **NPTEL BELIEVER** (Jul-Dec 2019, Jan-Apr 2020, Jul-Dec 2020) - Sustained engagement and performance
- **24 Course Completions with 15 Elite Performances** - Demonstrating mastery across diverse technical domains