

Milav Jayeshkumar Dabgar

Lecturer & AI/Data Science Practitioner

Engineering Educator • Innovation Leader • Full-Stack Developer



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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). Distinguished by exceptional student mentorship resulting in **Rs. 45+ lakhs in innovation funding**, including successful Shark Tank India pitches. Proven expertise in bridging academia-industry gap through innovative teaching methodologies, infrastructure leadership, and real-world system development.

Core Competencies

Technical Leadership

- Full-Stack Development
- Infrastructure Management
- AI/ML Implementation
- Embedded Systems Design

Academic Excellence

- Innovation Mentorship
- Curriculum Development
- Research Supervision
- Patent Guidance

Strategic Roles

- IT Strategy & Implementation
- Startup Ecosystem Development
- Industry-Academia Collaboration
- Project Management

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 & Assembly Language Programming, Microcontroller, Embedded Systems, Circuit Design & Tools, Consumer Electronics, and Entrepreneurship & Industrial Management
- 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 **Next.js-based Smart Academic Portal** featuring AI-driven attendance tracking, automated assessment workflows, comprehensive committee management, and real-time analytics dashboard
- Designed and manage enterprise-grade infrastructure: self-hosted Linux servers, Dockerized microservices, CI/CD pipelines, automated backup systems, and collaborative development workflows
- 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 advanced circuit simulation, PCB design, firmware development, and sophisticated control systems implementation
- Designed and optimized advanced control algorithms (PID, PI, Fuzzy Logic) using MATLAB Control System Toolbox for high-precision 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

Education

BS in Data Science and Applications
Indian Institute of Technology Madras (IIT Madras)

2022 – Present
Online Program

- **Diploma in Programming** - Successfully Completed with Distinction
- **Diploma in Data Science** - Final project phase (95% completion)
- Comprehensive coursework: Advanced Statistics, Machine Learning, Deep Learning, Data Visualization, Big Data Analytics

Master of Engineering, Communication Systems
L.D College of Engineering, Gujarat Technological University

2013 – 2015
Ahmedabad, Gujarat

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

Bachelor of Engineering, Electronics & Communication
Sal Institute of Technology and Engineering Research

2009 – 2013
Gujarat

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

Professional Certifications

Coursera Specializations - Industry-Leading Platforms

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 - Top 1% National Performance

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
- **Achievements:** NPTEL EVANGELIST (Dec 2020) | NPTEL DISCIPLINE STAR - Computer Science (Dec 2019, Dec 2020) | NPTEL ENTHUSIAST (Dec 2019) | NPTEL MOTIVATED LEARNER (Dec 2020) | NPTEL BELIEVER (Jul-Dec 2019, Jan-Apr 2020, Jul-Dec 2020) | 24 Course Completions with 15 Elite Performances

Udemy Professional Development - Industry Skills Enhancement

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, Node.js, Docker, Linux*) - **Production System** 2023 – Present

- Architected comprehensive academic management ecosystem serving 500+ students and 50+ faculty members
- Implemented AI-powered attendance tracking with 98% accuracy, reducing administrative overhead by 60%
- Built automated assessment pipeline with real-time analytics, improving result processing efficiency by 75%
- Deployed on self-managed cloud infrastructure with 99.9% uptime, zero-downtime deployments, and automated scaling
- Enabled collaborative development model with student contributors, fostering practical learning experiences

Student Innovation Ecosystem (*IoT, Drones, Embedded Systems*) - **Rs. 45L+ Funding Success** 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 government grants**
- Resulted in **2 filed patents** and multiple technology transfer opportunities with industry partners
- Created sustainable mentorship model adopted across multiple institutions in Gujarat

Technical Expertise

Programming & Development:

- Python, R, C/C++, JavaScript
- SQL, NoSQL, Assembly Language
- Next.js, React, Node.js, Express
- RESTful APIs, GraphQL, HTML, CSS
- Markdown, Git Version Control

Infrastructure & DevOps:

- Linux Server Administration
- Docker, Kubernetes, CI/CD
- Cloud Computing, Self-hosted Solutions
- Network Protocols, CCNA Certified
- Big Data Processing, Scalable Systems

Data Science & AI:

- Machine Learning, Deep Learning
- Computer Vision, NLP
- Statistical Modeling, Data Analytics
- TensorFlow, PyTorch, Scikit-learn
- Data Visualization, Pattern Discovery
- Recommender Systems, Clustering

Embedded Systems:

- STM32, Arduino, Raspberry Pi
- 8051, PIC, AVR Microcontrollers
- PCB Design (EagleCAD, Altium, OrCAD)
- Firmware Development, RTOS
- IoT Systems, Sensor Integration

Tools & Platforms:

- MATLAB, Simulink, Control Systems
- Image Processing, Signal Processing
- FPGA, Verilog, Digital Design
- CAD Tools, Simulation Software
- Educational Technology Platforms

Specialized Domains:

- Industry 4.0, Industrial IoT
- Routing, Switching, Network Security
- Business Analytics, Text Mining
- Mobile App Development (Android)
- Cybersecurity, Information Hiding

Professional Development & Certifications

NPTEL Excellence & Recognition

2019 – Present

- **NPTEL DISCIPLINE STARS - Computer Science** (Top 1% performers nationally among 100,000+ learners)
- **100+ Course Completions** across diverse domains: AI/ML, Data Science, Computer Networks, Software Engineering, Database Management, Algorithms, Computer Graphics, Discrete Mathematics
- **Consistent Elite Performance:** Maintained top percentile rankings across multiple semesters and subject areas
- **NPTEL ENTHUSIASTS & BELIEVERS** recognition for sustained excellence in online learning ecosystem
- Specialized certifications in: Machine Learning, Deep Learning, Data Analytics, Python Programming, Database Systems, Computer Vision, Natural Language Processing

Innovation Leadership Excellence

2024 – 2025

- **Rs. 45+ lakhs** total funding secured through student mentorship programs
- Successfully guided teams through **Shark Tank India** pitching process with positive outcomes
- Established sustainable innovation pipeline adopted by peer institutions

Academic Excellence - IIT Madras

2022 – Present

- Completed **Diploma in Programming** with distinction in competitive online program
- Currently pursuing **Diploma in Data Science** (final project phase)
- Achieved **100+ course completions** through NPTEL platform with **elite performance** and multiple domain expertise spanning Computer Science, AI/ML, Data Analytics, and Engineering subjects

Achievements & Recognition

Innovation Leadership Excellence

2024 – 2025

Leadership & Institutional Contributions

IT Convener	Leading comprehensive technology transformation including infrastructure modernization, digital curriculum integration, and faculty technology training programs
SSIP Co-Convener	Spearheading Student Startup & Innovation Policy implementation, establishing industry partnerships, and creating entrepreneurship ecosystem
Training & Placement	Strategic member of institutional placement committee, developing industry connections and enhancing student employability
MIS & UDAYAM	Contributing to Management Information Systems optimization and UDAYAM initiative for institutional excellence

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

Publications & Research

FPGA Implementation of Image Steganography	Published Research
<ul style="list-style-type: none">• Objective: Hardware implementation of YASS (Yet Another Steganographic Scheme) for secure communication• Technologies: FPGA, Verilog, Image Processing, Digital Signal Processing• Key Features: Resistance to self-calibration based blind steganalysis attacks• Publication: International Journal of Computer Applications - View Research Paper	
Wireless Data Acquisition System	R&D Project
<ul style="list-style-type: none">• Objective: Multi-device wireless monitoring and control system for industrial applications• Technologies: Modbus Protocol, Wireless Communication, Embedded Systems• Key Features: Control of up to 255 devices with real-time data processing• Applications: Industrial monitoring, environmental sensing, process control	