Harshit Tiwari

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Education

Madhav Institute Of Technology and Science **Nov 2022 – May 2026**
Bachelor of Technology in Internet of Things - 7.9 GPA *Gwalior, M.P*

Technical Skills

Languages: Python, Java, JavaScript
Databases: MongoDB, MySQL, Redis
Frameworks/Tools: Flask, Express.js, Node.js, React.js, Docker, WordPress, Git
Cloud/Platforms: Google Cloud Platform, Node-RED, Cloudinary
Developer Tools: MongoDB, MySQL, Redis

Projects

Real-Time Chat App with Microservices | *MERN Stack, RabbitMQ, Socket.IO, Docker, Postman* **June 2024**

- Developed a real-time chat application using the MERN stack with microservices architecture for scalability and modularity.
- Automated API testing and monitoring using Postman, improving development speed by 30% and reducing bugs in production by 25%
- Integrated Socket.IO for real-time, bidirectional communication, achieving sub-100ms latency and enhancing user experience.
- Containerized services using Docker, enabling efficient deployment and isolated development environments.

AI-IoT Based Dust Cleaning System for Solar PV Modules | *ESP32, CNN, Python, Node-RED* **December 2025**

- Integrated the VGG16 architecture into the CNN model for image classification, resulting in an improvement of model accuracy to 91.55%..
- Developed a cost-efficient solution capable of achieving full cost recovery within 1.5 years.
- Boosted solar module efficiency by 94% and reduced daily power consumption by 15.06W through automated cleaning.
- Integrated Python-based image analysis with ESP32 via Arduino IDE to control a water pump through relay modules.

RF Framework for Parkinsons Disease Diagnosis | *Python, Flask, Random Forest, Python, GitHub* **March 2024**

- Designed and implemented a machine learning framework using Random Forest to predict Parkinson's Disease from biomedical voice data.
- Processed and analyzed features like jitter, shimmer, Fo(Hz), NHR, HNR to train a high-accuracy classification model.
- Integrated the model into a Flask web application for real-time predictions based on user inputs.
- Deployed source code and model pipeline on GitHub, following best practices in version control and documentation.

SVM-Powered Diabetes Prediction Web Application | *Python, Flask, S.V.M , GitHub* **December 2023**

- Built a machine learning classification model using Support Vector Machine (SVM) that achieved 92% accuracy in predicting and classifying patient data as diabetic or non-diabetic.
- Applied data preprocessing techniques like normalization reduced variance by 20%, feature selection improved accuracy by 15%, and train-test split 80-20 ratio to boost model performance.
- Built and integrated a Flask-based web application for real-time user input and model inference, enabling intuitive interaction with the backend ML system.
- Successfully applied soft computing and supervised learning technique to develop an accurate, scalable predictive healthcare solution, enhancing early diagnosis capabilities.

Publications

International Conference on Recent Innovations and Trends, NIT Patna **May 2025**

∗ Presented research work on Smart Dust Mitigation System for Photovoltaics at the International Conference on Recent Innovations and Trends, organized by NIT Patna, May 2025.

∗ Shared key insights on photovoltaic efficiency enhancement and automated cleaning mechanisms with researchers and industry experts from across India.

Experience

National Thermal Power Corporation (NTPC) **July 2024 – August 2024**

Vocational training *Korba, CG*

- Monitored IP-based CCTV systems, identifying anomalies to ensure operational safety.
- Assisted in sensor installation and calibration for the Steam and Water Analysis System (SWAS).
- Contributed to building an IoT-powered water dashboard for real-time monitoring.

Leadership / Extracurricular

IEEE PES EX-COM **May 2025 – Present**

Chair-Person *State Level*

- Leading the IEEE PES Executive Committee as Chairperson, overseeing chapter activities, strategic planning, and member engagement initiatives.
- Managing a cross-functional team of volunteers, ensuring effective communication, task delegation, and timely project execution.
- Representing the student branch at IEEE regional meetings and collaborations, fostering academic and industry partnerships.

IEEE PES SYP Team **January 2025 – Present**

Volunteer *National Level*

- Coordinated student engagement initiatives to promote awareness about power and energy systems among young professionals and undergraduates.
- Assisted in planning and executing outreach programs, increasing student chapter visibility and IEEE PES membership.

ISCMCTR Conference **May 2023 – Present**

Student Editor *MITS Conference Team*

- Coordinated with authors and reviewers to ensure compliance with academic and formatting standards.
- Assisted in managing communication workflows, abstract submissions, and content curation for conference sessions.
- Played a key role in maintaining professional editorial standards for an international-level academic conference.

IEEE PES **Dec 2023 – Dec 2024**

Chair-Person *IEEE PES Society MITS*

- Set the strategic direction for the PES, developing a clear vision and goals for the society.
- Represent PES at IEEE Board meetings, conferences, and other external events.
- Manage the PES budget, ensuring responsible allocation of funds across various initiatives.