Gulmini Pradhan

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LinkedIn | GitHub
Google Scholar | ResearchGate | ORCID

Research Interests

Artificial Intelligence, Machine Learning, Deep Learning, Data-Driven Systems, Intelligent Automation, and Scalable Computing Systems

Education

B.Tech in Computer Science and Engineering
Vellore Institute of Technology, Chennai 2021 – 2025

Publications

Advanced IoT-Integrated Parking Systems with Automated License Plate Recognition and Payment Management
Scientific Reports (Nature), 2025

- IoT-based parking system using Raspberry Pi, ESP32, BLE, and OCR
- Real-time slot tracking, license plate recognition, and automated billing
- Achieved **less than 5% system error**

AI-Enhanced EEG-Based Personalized Mental Health Solution
IEEE Xplore, 2025

- EEG-based cognitive state prediction using regression models
- Signal processing and feature extraction for mental state inference
- Achieved **90.33% accuracy**

Small-Footprint Keyword Spotting in Smart Home IoT Devices
Springer, 2023

- Lightweight keyword spotting model for edge devices
- Optimized for low-latency and efficient inference

Experience

AI Developer, NEMA AI Jan 2026 – Present

- Working on EEG-based predictive modeling for cognitive and behavioral insights
- Applying machine learning for pattern recognition and analysis

Process Specialist, Hewlett Packard Enterprise Jul 2025 – Dec 2025

- Worked on enterprise platforms including Salesforce and Genesys for customer operations
- Managed process workflows and improved service efficiency
- Developed strong communication and stakeholder management skills

IT Intern, Johnson Controls Feb 2025 – Jun 2025

- Worked on Identity and Access Management (IDAM) systems and workflows
- Managed user access and provisioning using Active Directory

- Automated processes using PowerShell scripts to improve efficiency
- Handled ServiceNow operations; gained exposure to tools like Saviynt

VRITIKA Research Intern (SERB, Govt. of India) May 2024 – Jul 2024

- Selected under national-level SERB research program
- Worked on interdisciplinary AI and IoT systems

AI and Full Stack Intern, NEMA AI Jan 2024 – Apr 2024

- Analyzed EEG datasets and developed ML-based prediction systems

Research Intern, NIT Rourkela Sep 2023 – Dec 2023

- Developed IoT-based smart systems using sensors and embedded technologies
- Gained experience in Arduino programming and real-time processing

ML Intern, NALCO Aug 2023 – Sep 2023

- Built ML-based leave forecasting system using historical data

Projects

AI for Emotional Manipulation Detection in Cyber Attacks (Dec 2024 – Apr 2025)

- AI-powered system detecting emotionally manipulative phishing emails using classification and sentiment analysis
- Integrated Gmail API for real-time email fetching and analysis
- Identifies emotional triggers such as fear and urgency in cyberattacks

Tactile Vision: ML-Based Indoor Navigation Aid for Visually Impaired Individuals (Jul 2024 – Nov 2024)

- Developed a wearable assistive system for indoor navigation
- Provides real-time audio guidance for visually impaired users

Enhanced Employee Leave Management System (EELMS) (Aug 2023 – Sep 2023)

- ML-based leave forecasting system developed for National Aluminium Company Ltd.
- Predicted employee leave patterns from historical data to improve workforce planning

Technical Expertise

Machine Learning & AI
Deep Learning, Predictive Modeling, NLP, Model Deployment

Programming & Data
Python, C++, SQL, Data Processing, Feature Engineering

Systems & Backend
Flask, REST APIs, System Design, Automation (PowerShell)

Cloud & Tools
AWS, GCP, Git, Postman, ServiceNow

Domains
IoT Systems, Signal Processing, Identity & Access Management

Interests

Odissi Dance (Graduate), Poetry Writing, Travel, Fauna Enthusiast