

Piyali Debnath

Computer Science Engineer



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Career Objective

Aspiring to build a career in a dynamic organization where knowledge and skills can be enhanced while contributing to company growth through dedication and hard work. Looking for a challenging position to achieve full professional potential in a collaborative environment with honesty and a positive attitude.

Education

Maulana Abul Kalam Azad University of Technology (In House) <i>Master's : Computer Science and Engineering</i> 8.26 CGPA	August 2026 West Bengal
Durgapur Institute of Advanced Technology and Management <i>Bachelor Degree: Computer Science and Engineering</i> 82%	July 2022 West Bengal
Luthfaa Polytechnic Institute <i>Diploma Degree: Computer Science and Technology</i> 80%	July 2019 West Bengal
Bidhannagar Govt. Sponsored Girls' High School <i>Secondary Education</i> 70.14%	West Bengal

Experience

Sanaka Education Trusts Group of Institutions <i>LAB ASSISTANT (CSE)</i> - Supported delivery of core Computer Science courses and practical lab sessions. - Assisted in grading assignments, assessments, and student projects	March 2024-April 2025 Durgapur, West Bengal
Insabhi Pvt.Ltd <i>JUNIOR SOFTWARE DEVELOPER</i> - Designing, developing, and deploying custom modules and features in the Odoo ERP system to meet business requirements. - Worked closely with clients to provide solutions, and ensure the seamless integration and performance of the Odoo system.	Jun 2023 - Mar 2024 Durgapur, West Bengal
Aict Pvt.Ltd.(Durgapur) <i>TEACHER</i> - Taught web development fundamentals including HTML, CSS, and JavaScript. - Designed and delivered practical coding sessions and exercises.	Nov 2022 - May 2023 Durgapur, West Bengal
Mahal Life Style Pvt. Ltd <i>QUALITY CONTROLLER</i> - Inspection & Testing: Regularly check raw materials, in-process items, and finished products using measuring/testing tools to ensure they meet quality and safety standards. - Documentation & Reporting: Keep accurate records of inspections, tests, and quality audits. - Quality Assurance: Create, implement, and maintain quality control procedures and standards.	Aug 2021 - Oct 2022 Durgapur, West Bengal

Fog-Based Intrusion Detection Systems: A Systematic Review of Machine Learning, Deep Learning and Hybrid IDS Architectures and Methodologies

- published in Springer Nature (SCOPUS Indexed)
- DOI: 10.1007/978-3-032-31216-7 5
- The paper is typically published in the Lecture Notes in Networks and Systems series.
- This study creates a smart security system that works close to IoT devices instead of relying only on the cloud. By detecting attacks directly at the fog layer, it can respond faster, use less power, and handle more devices at once. It combines different decision methods to make results more accurate, learns from updates without sharing raw data, and also explains why it flagged something as an attack. This makes the system fast, reliable, and easy to use for securing smart homes, cities, and industries.

Imbalance-Resilient Distributed Deep Boosting Ensemble (DDBE) for Adaptive Intrusion Detection in Fog-Enabled IoT Networks

- Accepted and Presented, will be published in Springer.
- The paper is typically published in the Algorithms for Intelligent Systems series.
- Developed a distributed deep learning-based intrusion detection system for fog-IoT using a novel DDBE framework with heterogeneous deep learning models to capture features. Implemented adaptive boosting with F1-based dynamic weighting and SMOTE for handling class imbalance, improving minority attack detection.

A Distributed Deep Stacking Ensemble with Imbalance-Aware Learning for Intrusion Detection in Edge-IoT Networks

- Accepted and Presented, will be published in Springer.
- The paper is typically published in the Algorithms for Intelligent Systems series.
- Developed a distributed deep stacking ensemble model for intrusion detection in Edge-IoT networks, incorporating imbalance-aware learning to handle skewed attack distributions. Integrated multiple deep learning models to improve feature representation and detection robustness across diverse attack types. Achieved enhanced detection performance with improved accuracy, generalization, and real-time scalability in edge environments.

Projects

MENet: A Mitscherlich Function based Confidence Aware Imbalance Resilient Distributed Deep Ensemble Architecture for Secure FOG-IoT Infrastructure

- The MENet framework collects IoT data from distributed fog nodes within a smart city environment and performs preprocessing to clean and normalize the data. It applies a Mitscherlich fusion technique to handle data imbalance and improve feature representation. A distributed deep ensemble model is then deployed across fog nodes to enhance prediction accuracy and system reliability. The system also incorporates a confidence-aware decision mechanism to evaluate prediction certainty and filter unreliable outputs. This approach enables effective anomaly and threat detection in FOG-IoT infrastructure, ensuring secure and sustainable smart city operations.

Online Voting System

- eVote is an election system that facilitates voters to record their secure and secret ballot electronically. It has a friendly user interface and enables voters to cast their votes in few simple steps. Ensures the authenticity of the voters and the votes cast by them along with non-traceability of the casted vote. It renders Simple and Accessible voter experience that eventually increases voter engagement and turnout. Auditable, Easy To Use, Secure and Reliable is what sets eVote apart from its competitors.

Mini Projects with Py Jokes module

- Using PY jokes module creates interacts with the user and provides jokes based on their choices, showcasing how to use the pyjokes module effectively.

Technical Skills

Languages: Python, C, C++,JavaScript

Technologies: HTML5, CSS, React.js, Node.js, Bootstrap

Frameworks & Libraries: TensorFlow, PyTorch, Pandas, NumPy, Matplotlib

Databases: PostgreSQL (Basic)

Tools & Platforms: Odoo(Basic)

Concepts: Object-Oriented Programming (OOP), Data Structures & Algorithms, Computer Networks (Basic), Machine Learning, Artificial Intelligence, Neural Networks, Cloud Computing

Languages

English , Hindi , Bengali