Tanisha Dey

Information Science Undergrad | AI and Software Engineering Enthusiast
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Professional Summary

Dynamic engineering student with a **9.43 CGPA**, ranked in the **top 2% nationally** in NPTEL's Data Science for Engineers and recipient of an Elite + Silver certification in Artificial Intelligence for Economics, demonstrating strong analytical ability, academic excellence, and adaptability across domains. Experienced in designing and deploying **AI-driven, data-intensive systems**, including a city-scale urban digital twin, a hybrid ensemble intrusion detection system, and an AI-powered educational assistant, applying machine learning, deep learning, geospatial analytics, and NLP to real-world problem domains. Proven leadership as Chair of IEEE Women in Engineering (WIE) and Joint Director of Finance at Rotaract RVCE, leading technical and STEM outreach initiatives while managing budgets, financial planning, and cross-functional event execution.

Education

RV College of Engineering	Bangalore, Karnataka	Sept 2023 – Aug 2027
B.E. in Information Science and Engineering		*CGPA: 9.43*
RV PU College	Bangalore, Karnataka	June 2021 – March 2023
Science, PCMC Stream		*Percentage: 96.67%*
St. Paul's English School	Bangalore, Karnataka	June 2011 – March 2021
High School		*Percentage: 97%*

Technical Skills

Programming Languages and Technologies: C++, Python, HTML, CSS, JavaScript, Streamlit, Ollama, Pandas, NumPy, Matplotlib, Power BI
Tools and Platforms: Git, GitHub, ThingSpeak, Microsoft Office (Word, Excel, PowerPoint), Canva, Figma

Projects

EcoTwin AI – Digital Twin for Urban Sustainability Planning

- Built a city-scale AI-driven urban digital twin integrating satellite remote sensing, geospatial ML, and transformer-based NLP, deployed via a cloud-native architecture using PostgreSQL–PostGIS, FastAPI, and CesiumJS, with a user interface generating PDF-based simulation reports on feasibility, energy efficiency, cost, and pollution impact.
- Implemented an integrated urban intelligence pipeline combining XGBoost-based Urban Heat Island modeling on satellite-derived features (NDVI, albedo) achieving an R^2 **of 0.685** and **MAE of 1.34 °C**, a Random Forest–based sustainable material recommendation engine attaining **93% accuracy** for UHI-driven decisions and 87% accuracy with user cost and eco-preference constraints, and a BERT-based geo-semantic sentiment analysis layer using web-scraped Reddit posts and news articles to map citizen well-being and urban stress across 225 wards in Bengaluru.
- Authored a research paper titled *"EcoTwin AI: Digital Twin for Urban Sustainability Planning"*, which was peer-reviewed and accepted for presentation at the **International Conference on Intelligent Computing and Control Systems (ICICCS-2026)**.

Hybrid Network Intrusion Detection System

- Designed and implemented a hybrid Intrusion Detection System integrating Random Forest, Isolation Forest, and Autoencoder-based deep learning, with a confidence-based adaptive ensemble strategy to dynamically fuse supervised, unsupervised, and reconstruction-based predictions for detecting both known and zero-day attacks.
- Evaluated the IDS on the CICIDS2017 dataset, achieving **99.55% accuracy**, **1.00 precision**, and **ROC-AUC of 0.9898**, while demonstrating strong problem-solving and data analysis skills by building a user interface for real-time CSV uploads, automated risk classification, and actionable anomaly insights.
- Authored a research paper titled *"An Adaptive Hybrid Ensemble Framework for Network Intrusion Detection Using Supervised, Unsupervised and Deep Reconstruction Learning,"* presented at the 9th

IEEE International Conference on Computational Systems and Information Technology for Sustainable Solutions (CSITSS-2025), published in **IEEE Xplore**.

AI Tutor Web App

- Developed an AI-powered educational assistant that performs automated academic PDF ingestion, semantic summarization, subject-specific question answering, and quiz generation aligned with Bloom's taxonomy using NLP-driven content analysis.
- Implemented a real-time conversational chatbot to support interactive learning and student collaboration, emphasizing adaptive responses and context-aware assistance for personalized educational support.

Publications

S. S., T. Dey, and R. B. S., "An Adaptive Hybrid Ensemble Framework for Network Intrusion Detection Using Supervised, Unsupervised and Deep Reconstruction Learning," in *Proceedings of the 9th International Conference on Computational System and Information Technology for Sustainable Solutions (CSITSS)*, Bangalore, India, 2025, pp. 1–6. doi: 10.1109/CSITSS67709.2025.11294342.

Awards

Academic Excellence Award RV PU College
Recognized as a **"Significant Achiever"** for academic distinction in STEM examinations conducted by government-authorized bodies. Demonstrating consistent excellence and analytical capabilities. Aug 2023

Leadership and Societies

IEEE – Women in Engineering RVCE, Bangalore
Chair Jan 2025 – Present
Spearheaded initiatives to empower women in STEM through mentorship programs, workshops, and leadership talks, organizing innovation-driven events and community outreach programs with over **150+** participants. Collaborated with **10+** faculty members and industry experts to foster professional growth, inclusion and expanded networking opportunities.

Rotaract Club of RVCE RVCE, Bangalore
Joint Director - Finance July 2025 – Present
Coordinated large-scale leadership and civic engagement initiatives, securing **Rs. 10,000+** in sponsorships and managing **30+** cross-functional team members. Demonstrated strategic thinking, collaboration, and operational execution in a fast-paced environment.

Certifications

NPTEL – Artificial Intelligence for Economics IIT Kharagpur
Earned an **Elite + Silver Certification** with a consolidated score of **82%**. Acquired understanding of applying AI and machine learning techniques in economic modeling, prediction, and decision-making using real-world datasets. Sep 2025

NPTEL – Data Science for Engineers IIT Madras
Earned an **Elite + Gold Certification** with a score of **90%**, ranking in the **top 2%** nationally. Gained in-depth knowledge of the fundamentals of data science, data analysis, big data processing, machine learning algorithms, and analytical techniques used in scalable systems. Apr 2025

IEEE Awareness Module on AI Ethics IEEE
Completed a foundational course on building trustworthy AI systems for risk management and compliance. Covered ethical innovation, responsible cyber security awareness, and transparency for large-scale intelligent systems. Mar 2025

Universal Human Values (UHV) Reliance Foundation
Developed interpersonal adaptability and collaborative leadership through human-centered learning. Explored ethical reasoning, harmony in systems, and values essential for responsible, sustainable, and innovation-driven growth. Apr 2025