Rikesh Yadav

Research Intern, Intelligent Networks & Edge-Cloud Computing (INEC) Laboratory
Yuan Ze University, Taiwan

B.E. in Computer Science and Engineering
Sri Eshwar College of Engineering • Coimbatore, India • Expected Graduation: May 2027

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Academic Profile

Bachelor of Engineering student in Computer Science and Engineering and Research Intern at the Intelligent Networks & Edge-Cloud Computing (INEC) Laboratory, Yuan Ze University, Taiwan. Current research focuses on Reinforcement Learning, Deep Reinforcement Learning, Intelligent Networking, and Edge Computing, with broader research interests in Distributed AI, Human-Centered AI, and scalable intelligent systems.
International research experience in reinforcement learning, graph neural networks, and intelligent systems, together with conference paper submissions, has established a strong foundation in machine learning, distributed computing, and scientific problem-solving. Seeking to pursue a research-oriented Master's program to contribute to trustworthy, scalable, and human-centered artificial intelligence.

Education

Sri Eshwar College of Engineering **2023 – 2027**
Bachelor of Engineering (B.E.) in Computer Science and Engineering
CGPA: **8.68/10.00**
Relevant Coursework: Machine Learning, Data Structures and Algorithms, Computer Networks, Operating Systems, Database Management Systems, Cloud Computing, Artificial Intelligence, Software Engineering.

Research Experience

Research Intern – Intelligent Networks & Edge-Cloud Computing (INEC) Laboratory **Jun 2026 – Aug 2026**
Yuan Ze University, Taiwan *NSTC International Internship Pilot Program (IIPP)*

- Conducted research on Reinforcement Learning (RL) and Deep Reinforcement Learning (DRL), implementing and evaluating value-based algorithms for sequential decision-making in dynamic environments.
- Designed custom reinforcement learning environments and implemented intelligent agents using Gymnasium and PyTorch, evaluating their performance on benchmark environments including GridWorld, CartPole-v1, and LunarLander-v2.
- Investigated advanced reinforcement learning techniques through literature review, algorithm implementation, hyperparameter optimization, and experimental evaluation to improve training stability and policy performance.
- Conducted a comprehensive review of recent IEEE literature on Graph Neural Networks (GNNs) and intelligent task offloading, identified research gaps, and proposed a hybrid GCN-DQN framework for adaptive emergency evacuation in IoT-enabled smart environments.
- Currently developing a Graph Neural Network-enhanced Deep Reinforcement Learning framework using PyTorch Geometric, with a research manuscript in preparation for submission to an international conference.

Research Publications & Manuscripts

A GNN-Enhanced Deep Reinforcement Learning Framework for Adaptive Indoor Emergency Evacuation
Rikesh Yadav, Ihsan Ullah
Status: Manuscript in Preparation
Target Venue: IEEE International Conference on Intelligent Environments (IE)

A Novel Adaptive Caching Framework for Dynamic Web Portals Using Machine Learning-Aided Predictive Models
Rikesh Yadav, Kritika Sapkota, Rithiga S., Ravi Agrahari, Giridharan R.
Status: Accepted for Short Paper Presentation
Venue: 7th International Conference on Software Computing Technologies (icSoftComp 2025), Non-Springer Track
Note: Publication was not completed due to non-submission of the final camera-ready version and registration.

Research & AI Projects

Adaptive Indoor Emergency Evacuation using Graph Neural Networks and Deep Reinforcement Learning
PyTorch, PyTorch Geometric, Gymnasium, Reinforcement Learning

- Developing a hybrid Graph Neural Network (GCN) and Deep Q-Network (DQN) framework for adaptive emergency evacuation in dynamic indoor environments.

- Designed a custom Gymnasium-compatible simulation environment supporting dynamic fire propagation, obstacle-aware navigation, and graph-based state representation.
- Evaluating the proposed framework against baseline reinforcement learning models with the objective of preparing an IEEE conference publication.

Candidate Profile Transformer: Explainable Multi-Source Data Integration Framework
Python, Data Engineering, JSON, AI-assisted Information Processing

- Designed a deterministic framework for consolidating heterogeneous candidate data into a canonical profile using confidence-aware conflict resolution.
- Implemented field-level provenance tracking, schema validation, configurable data projection, and explainable transformation pipelines.
- Developed a modular architecture emphasizing transparency, extensibility, and trustworthy data integration for AI-assisted recruitment systems.

MindMate — AI-Assisted Mental Wellness Platform
Python, Streamlit, LangChain, Groq API

- Developed an AI-assisted wellness platform integrating conversational support, journaling, mood tracking, and daily routine management.
- Leveraged Large Language Models (LLMs) to provide personalized user interaction while maintaining a modular and scalable system architecture.

Technical Skills

Programming Languages: Python, C++, Java

Machine Learning & AI: Reinforcement Learning, Deep Reinforcement Learning, Graph Neural Networks, PyTorch, PyTorch Geometric, Gymnasium, LangChain

Cloud & Systems: AWS Cloud Fundamentals, Linux

Databases & Data: MongoDB, MySQL, NumPy

Development Tools: Git, GitHub, VS Code, Postman

Web Technologies: React.js, Node.js, Express.js

Leadership & Academic Service

- Appointed as the Nepalese Student Representative at Sri Eshwar College of Engineering, serving as a liaison between Nepalese students and the institution while assisting with academic and administrative coordination.
- Mentored junior students in programming, data structures and algorithms, and introductory artificial intelligence concepts through peer learning and technical guidance.

Awards & Achievements

- Selected for the **NSTC International Internship Pilot Program (IIPP)** to conduct research at the Intelligent Networks & Edge-Cloud Computing (INEC) Laboratory, Yuan Ze University, Taiwan.
- Secured **Third Place** in **Freshathon**, a team-based innovation and software development competition organized by **Sri Eshwar College of Engineering**.
- Secured **First Place** in the **Treasure Hunt** event at **Ideatronics**, organized by **KPR Institute of Engineering and Technology (KPRIET)**.

Languages

- Nepali — Native Proficiency
- English — Professional Working Proficiency
- Hindi — Professional Working Proficiency