Rishav Kumar

Muzaffarpur, Bihar | Mob: +91-8210142221
rishavkuma@iitbhilai.ac.in | LinkedIn | GitHub | LeetCode | CodeChef

Education

Indian Institute of Technology, Bhilai 2024–2026
Master of Engineering, Data Science and Artificial Intelligence(DSAI), CGPA: 8.10

University Institute of Technology, Burdwan 2019–2023
Bachelor of Engineering, Computer Science and Engineering(CSE), CGPA: 8.44

Skill Summary

Languages: C++, Java, C#, Python, JavaScript
Tools: Android Studio, Unity, Gephi, SmartFox, Node.js, Express.js, HTML, CSS, FastAPI, Pytorch, Docker, Langchain
Coursework: Data Structures and Algorithms, Object-Oriented Programming, MySQL, Machine Learning, Deep Learning, Natural Language Processing(NLP), Adversarial Machine Learning, Network Science

Experience

CGPE International Private Limited july 2023–Dec 2025
Software Engineer (Full-time)
Designed and implemented complete game logic for **Rummy** and **Ludo** on SmartFoxServer, ensuring secure server-side control of gameplay. Used **Unity** exclusively for visualization, with backend integration through **Node.js**. Successfully launched the game **OneX11**, deployed in production with live users. Additionally, contributed to the development of a **reinforcement learning-based bot** to automate gameplay and enhance AI decision-making.

Shellcode Private Limited Oct 2022–Dec 2022
Frontend Game Development Intern
Contributed to the frontend development of 2D games using Unity.

Projects

Entity-Aware Machine Translation
Implemented Entity-Aware Machine Translation (EA-MT) using Flan-T5 with multi-task learning for English to French. Trained model on Named Entity Recognition (NER) and EA-MT tasks, optimized loss to prioritize translation quality for rare words and entities, achieving ***BLEU 44.7 and Entity-Level F1 0.75***, outperforming ***baseline T5 and mT5 variants***.

Cold-Start Recommendation System
Improved recommender system using Neural Network Cold-Start Solver, Matrix Factorization, and Neural Collaborative Filtering (NCF) to better model complex user–item interactions. Achieved ***MAE 0.71, RMSE 0.98, and 59.9% product prediction accuracy*** with the neural network model and for Matrix Factorization RMSE is 1.25.

Adversarial SuperPoints Model Attack and Defense
Designed an adversarial patch attack on real-time camera input by perturbing the first frame and propagating consistent patches across frames using SuperPoints keypoint matching. Implemented defense strategies including ***JPEG compression, Gaussian blur, AutoEncoder, and UNet***, significantly mitigating adversarial impact.

Video Content Analysis using Computer Vision and LLMs
Developed an API-based system using **FastAPI** that extracts frames from videos, detects objects in each frame with **YOLOv8**, structures timestamped data into JSON, and analyzes it using **Gemini-2.5-Flash LLM** to generate detailed chronological summaries and insights.

Network-Based Analysis of Chess Move Dynamics
Analyzed chess move patterns using network-based approaches with Gephi to study game dynamics and strategic decision-making.

Achievements and Publications

- Got two of my articles related to Android studio and Java published on GeeksForGeeks [1, 2].
- Published a research paper in Springer LNCS (SPACE 2025) on gradient-guided adversarial patch attacks for improving the effectiveness and localization of adversarial attacks on deep neural networks