Rachit Mehul Pathak

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EDUCATION

New York University – Tandon School of Engineering | M.S. in Computer Science | New York **Exp. May 2026**
Relevant Courses: Machine Learning, Cloud Computing, Software Engineering and Big Data

Vellore Institute of Technology | B.Tech. in Computer Science (Spec. in AI &Robotics) **|** India **Sept 2020 – May 2024**
CGPA-8.89

TECHNICAL SKILLS

Programming Languages: Python, SQL, JavaScript, MATLAB, CSS, HTML, XML
Frameworks and Others: AWS, Docker, Apache Spark, Tensorflow, Node.js, Express.js, Git, Hadoop, Streamlit
Distributed Systems/Databases: Kubernetes, DynamoDB, MySQL, MongoDB

WORK EXPERIENCE

EssentiallySports, New Delhi - Machine Learning Engineer Intern **Jan 2024 – Jun 2024**

- Collaborated with industry experts to develop advanced AI-driven solutions, implementing **feature engineering** techniques to extract key insights from large datasets for a leading American sports journalism company.
- Led the project for creating an advanced **article recommendation engine** by using machine learning techniques such as **collaborative filtering** and **content-based recommendation** models to personalise content based on user behaviour, sports categories, and events.

ResoluteAI Software, Bengaluru - Deep Learning Engineer Intern **Jun 2023 – Sept 2023**

- Contributed to 3 projects related to **Computer Vision**. Trained object detection models using **ResNet-50** and **YOLOv5.**
- Headed a team of 4 interns for two months while working on a project to count bottles on a glass manufacturing unit's conveyor belt. Client reported an increase in counting accuracy by 15%.

Cephas Consultancy Services Private Ltd., Bengaluru - Software Developer Engineer Intern **May 2022 – Sept 2022**

- Created **XML** feeds and used **WordPress** to create 25+ job listings.

PROJECTS

Optimizing Gameplay: A Study of Reinforcement Learning Algorithms on 2048 Tiles Problem (NYU-Fall 2024)

- Designed and implemented RL models (**Q-Learning, DQN, MCTS**) to solve the 2048 Tiles Problem, leveraging advanced decision-making techniques to optimize gameplay strategies and achieve significant performance improvements.
- Performed comprehensive evaluations of RL algorithms using metrics like **episode length, training time, and reward accumulation** to analyze their effectiveness in high-dimensional state-space problems.

e-Waste Segregation and Management Capstone Project (VIT -Spring 2024)

- Built a dataset of 5000+ images for classifying **good/damaged bulbs, batteries, and PCBs**, and conducted comparative studies on **YOLOv5**, **YOLOv8**, and **ResNet-50**, presenting findings to industry experts.
- Submitted Research Paper for publishing in the **ScienceDirect Journal**.

Autonomous Obstacle Detection and Avoidance in Drones (VIT - Spring 2023)

- Built a model using deep learning techniques to **simulate object detection** in drones and deployed Microsoft's virtual simulation environment **AirSim** for drone simulation.
- Published research in International Journal "**Innovative Research Thoughts**".

Learning Model for Autistic and Dyslexic Children (VIT - Spring 2023)

- Tailored a personalized learning model for children with disabilities, integrating VGG-16 and InceptionV4 for visual cue analysis and Google Speech-to-Text for identifying speech difficulties.
- Study published in International Journal "**Innovative Research Thoughts**".

Super Predictor for Indian Premier League (VIT - Fall 2022)

- Applied **Naïve Bayes, Random Forest** and **K-Means Clustering** to predict outcome of a game in IPL by considering factors such as toss winner, city, wins by batting first/second.
- Published project in International Journal "**Innovative Research Thoughts**".

LEADERSHIP & AWARDS

- Won special mention at VITCC-Intra MUN 2022 in the Security Council Committee as a delegate of France.
- Coordinated the programming department of the ASTREx (Amateur Satellite Technology Research and Exploration) special team at VIT Chennai, overseeing project execution and team collaboration.