

Ritesh Kumar

- Berlin, Germany -

ritesh.kumar.07.20@gmail.com , +49 15511338839, [LinkedIn](#), [GitHub](#), [Portfolio Website](#)

Education

Arden University

(Berlin, Germany)

2025-2026

M.Sc. Data Science

DY Patil International University

(Pune, India)

2021-2024

CGPA 8.78 / 10

Bachelors in Computer Applications [Cloud Computing Major]

Projects & Experience

CNN for Pneumonia Detection from Chest X-Ray Images | [GitHub](#)

- Developed a **Convolutional Neural Network (CNN)** using **PyTorch** to classify pneumonia from ~5,800 chest X-ray images, focusing on challenges specific to medical imaging datasets.
- Addressed performance bottlenecks by applying **image augmentation, batch normalization, threshold tuning, dropout**, and analysing the effects of **class imbalance** on the final accuracy.
- Evaluated model performance using **ROC-AUC** and **Recall** instead of accuracy alone, recognizing the importance of minimizing false negatives in medical datasets. Final Recall score of **1.00**, ROC-AUC of **1.00**, and accuracy of **~75%**.
- **Tech Stack:** PyTorch, Python, NumPy, Matplotlib, Deep Learning.

MNIST Handwritten Digit Classifier | [GitHub](#)

- Implemented a **Convolutional Neural Network (CNN)** for handwritten digit classification on the **MNIST dataset**, achieving **99.1% test accuracy**.
- Transitioned from basic neural networks to **CNN-based image recognition**, developing a strong understanding of **feature extraction, convolution, pooling, and classification layers**.
- Iteratively experimented with architecture depth, convolutional layers, and optimization strategies.
- **Tech Stack:** Python, PyTorch, CNN, Deep Learning, Model Optimization techniques

Employee Churn Neural Network from Scratch (NumPy, Python) | [GitHub](#)

- Implemented a **binary classification neural network** from scratch using NumPy and Python on an employee churn dataset of 5000 records and 22 features.
- Focused on core ML concepts like backpropagation, loss functions, activation functions, gradient descent, and more.
- Optimized the network for an accuracy of **~93.7%**.
- **Tech Stack:** Python, NumPy, Linear Algebra, Calculus, Matplotlib, Machine Learning Fundamentals.

Skills

Programming: Python, C++, Java, JavaScript, HTML, CSS, PHP, Dart

Frameworks: PyTorch, Flutter, Docker

Database Management: SQL, NoSQL

Data Analysis: Pandas, NumPy, Scikit-Learn, Matplotlib, Seaborn, Plotly, Power BI, Excel, Google Suite

Machine Learning: Linear & Logistic Regressions, Neural Network, CNN, ResNet.

Core Concepts: Data Structures & Algorithms, Object Oriented Programming, Artificial Intelligence & Machine Learning

Tools: GitHub, LINUX, Android Studio, Jupyter Notebook, Google Colab

Soft-Skills: Communication, Leadership, Analytical thinking, Problem-solving, Critical reasoning

Achievements

- President of CodeDecode Student Club - DY Patil International University (Aug 2023 - May 2024)
- 4 Star in Python on Hackerrank
- 2 Star in C++ on Hackerrank