



## Contact

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## Education

### 2024-2025

**MSc Artificial Intelligence**

**University of East London**

**Award Classification:**

Passed with Distinction - 82%

### 2021-2023

**BSc Computer Networking  
and IT Security**

**London Metropolitan University**

**Award Classification:**

First Class Honors - 81.94%

<https://www.linkedin.com/in/rikesh-mandal-98758b1a0>

<https://ornate-torte-03c391.netlify.app/>

<https://github.com/Rikesh-Mandal>

# Rikesh Mandal

## Software Developer

I am a postgraduate in Artificial Intelligence (MSc) with a background in Computer Networking and IT Security (BSc). I have strong foundations in computer science and hands-on experience across machine learning, deep learning, and software development. During my academic journey, I worked on impactful projects including a sign language-to-speech glove, which combined sensors and machine learning to translate hand gestures into audible speech, and a single-image AI system for monocular depth estimation and 3D model reconstruction using neural networks and Structure from Motion, developed as part of my Master's dissertation.

Alongside my academic work, I have 1+ years of professional experience as a Java Developer at FocusOne Pvt Ltd, a fintech company, where I contributed to building and maintaining scalable backend systems. I enjoy working at the intersection of intelligent systems and real-world applications, continuously building projects, exploring emerging AI technologies, and refining my skills to create practical, high-impact solutions.

## Experience

### ○ 2022 - 2024

**FocusOne Payment Solutions**

**Assistant Java Developer**

**Key Responsibilities:**

- Researched and evaluated emerging messaging and event-driven technologies (e.g., NATS.io) to support scalable and fault-tolerant distributed systems.
- Designed, developed, and maintained RESTful APIs using Java and related frameworks, ensuring performance, security, and reliability.
- Contributed to the development and enhancement of SCT Credit and Debit Card Authorisation Systems, supporting secure and real-time transaction processing.
- Built new backend services and system components based on evolving business and technical requirements.
- Enhanced and refactored in-house applications to improve functionality, maintainability, and performance.
- Diagnosed, debugged, and resolved issues in existing systems, ensuring high availability and minimal downtime.
- Produced and maintained clear technical documentation, including software specifications and API documentation.
- Created and managed comprehensive API documentation using Swagger to improve developer usability and collaboration.

## Technical Skills

**Programming Language:** Java, Python, JavaScript, MATLAB

**ML/AI Frameworks:** PyTorch, TensorFlow, Keras, OpenCV, Scikit-learn

**Web and Backend Frameworks:** Django, Vue.js, Java Spark, Spring Boot

**Networking:** Introduction to Networking, Switching Routing and Wireless Essentials (SRWE), Enterprise Networking, Security and Automation (ENSA)

**Tools & Technologies:** Git, GitHub, MySQL, SQLite, Swagger, REST APIs, Open3D, Postman, Virtual Environments, Docker (basic)

**Core Technical Areas:** Computer Vision, Machine Learning, Deep Learning, IoT, Network Security, API Design, Depth Estimation, Point Cloud Processing

**Operating Systems:** Microsoft Windows, Linux, MacOS

# Projects

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## ○ Monocular Image-to-3D Reconstruction

<https://github.com/Rikesh-Mandal/ImageTo3D>

Developed a deep learning pipeline using PyTorch for monocular depth estimation with a ResNet50 encoder decoder architecture. Trained the model on the NYU Depth V2 dataset to predict depth maps from RGB images. Generated 3D point clouds using Open3D from the predicted depth maps and RGB images. Performed surface reconstruction using the Poisson algorithm and mesh refinement techniques.

Technologies Used:

Libraries/Frameworks: PyTorch, OpenCV, Open3D, Matplotlib, NumPY, SciKit-Learn, TensorFlow

Programming Languages: Python

Libraries/Frameworks: PyTorch, OpenCV, Open3D, Matplotlib, NumPY, SciKit-Learn, TensorFlow

## ○ Image Classification System

<https://github.com/Rikesh-Mandal/image-classification-system/tree/master>

Developed an image classification system that classifies animal images. This project was aimed to classify images of 9 different animals (9 classes). A deep learning, namely a custom Convolutional Neural Network (CNN) architecture was designed from scratch to achieve its goal. This was done to gain more control over the architecture, making it possible to fine-tune each layer such as the filter size used, number of filters, and so on. Multiple convolutional layers, with increasing depth, were one of the key innovations in this design. These layers were complimented by batch normalization and dropout layers to prevent overfitting. Convolutional filters of size 3x3 were used which are effective at capturing fine details within images. It achieved an overall accuracy of 79.51%.

## ○ Sign-Language-to-Speech Gloves

Designed and developed an innovative glove embedded with flex sensors and a gyroscope that connected to an Arduino to translate American Sign Language into speech. This project showcases my ability to apply machine learning algorithms and integrate hardware with software to create user-friendly solutions, demonstrating my problem-solving capabilities and adaptability. K-Nearest Neighbor was implemented using Python and the dataset was self created, cleaned and preprocessed.

## ○ Image Compressor

<https://github.com/Rikesh-Mandal/Image-compressor.git>

Built a client-side image compression tool using JavaScript frameworks and libraries, reducing image size without compromising quality. This project illustrates my frontend development skills and understanding of efficient data handling techniques.

## ○ Image Cropper

<https://github.com/Rikesh-Mandal/ImageCropper.git>

Developed a client-side application for cropping images directly in the browser, allowing users to manipulate images easily without server-side processing. This project underlines my skills in frontend development and working with user-centric design.