

# Rishik Mishra

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## EDUCATION

Master of Science in Computer Engineering, **New York University** (09/2022 - 05/2024)

- Relevant Coursework: Internet Architecture and Protocols, Digital Signal Processing, Machine Learning, Interactive Medical Robotics, Real-Time Embedded Systems, Image and Video Processing

Bachelor of Technology in Computer Science, **Gla University** (08/2018 - 07/2022)

- Relevant Coursework: Introduction to Machine Learning, Big Data, Digital Image Processing, Python Programming, Agile Software Development, Database Management

## WORK EXPERIENCE

**Machine Learning Intern**, RadicalX (05/2023 - 08/2023)

- Led a team of 8 interns to design and deploy an Llm based tutoring system
- Developed and fine-tuned chatbots implementing Llama2 and GPT-4 for personalised course generation, resulting in a 30% reduction in response generation time and a 25% improvement in response coherence compared to baseline models.

**Computer Vision Intern**, KoiReader Technologies (05/2021 - 08/2021)

- Engineered efficient OCR suite, achieving a 13.7% improvement in word recognition accuracy and a 22% reduction in processing time.
- Collaborated with cross-functional teams to deliver projects on time, conducted daily status updates with stakeholders, and identified potential roadblocks to mitigate risks.

## SKILLS

**Programming Languages:** Python, Java, C++, C, Swift, JavaScript.

**Data Science and Machine Learning:** R, OpenCV, Tesseract, Scikit-learn, NumPy, Pandas, SQL, Tensorflow.

**Web Development:** Django, HTML/CSS, NodeJS, AngularJS, React Native, XML, Rest API.

**Cloud Computing and DevOps:** AWS, Azure, GCP, Jenkins, GitLab, CI/CD, Ansible, Linux, Docker.

**Data analysis and Management:** MongoDB, MySQL, Cassandra, Excel, Tableau, Power BI, NoSQL.

## PROJECTS

**Early Parkinson's Detection**

- Reduced cross-examiner variability and time requirements by developing and validating a computer-aided diagnostic algorithm using **Python, TensorFlow, and Keras**

**Depression Detection in Social Media Users**

- Achieved a precision and recall of 96.5% and 97.33% in identifying depressive symptoms in social media posts
- Designed and trained a hybrid Bi-LSTM + CNN model using Python, TensorFlow, and **scikit-learn**

**Frame Rate Enhancement Using GANs**

- Improved the average conversion time of 3.7s from 30fps to 60fps by developing a novel Generative Adversarial Network (GAN) based model using **PyTorch** that generated high-quality intermediate frames in real-time

**Brain MRI Segmentation and Processing Toolkit**

- Reduced brain MRI image segmentation time by 53% from baseline
- Spearheaded the team project built with Python, TensorFlow, **scikit-image** (processing), and **Flask** (backend)
- Designed and implemented an interactive **React UI**, enabling seamless data exchange through REST APIs.

**CityQ**

- Led team of 3 to develop real-time NYC bike-sharing solution, analyzing 78M+ trips using Python (FastAPI) & **Spark**
- Achieved 20% drop in predicted shortage with ML-driven dynamic pricing & scalable architecture for future expansion

**ReSeg**

- Collaborated with NYU Video Lab to develop a method for segmenting 3D human images using 2D segmentation and 2D-to-3D reprojection.
- Utilized Blender and Unreal Engine for creating diverse 2D projections, simulating lighting and camera properties.

## PUBLICATIONS

Shankdhar A., **Mishra R.**, Shukla N. (2022) An Application of Deep Learning in Identification of Depression Among Twitter Users. In Khanna A., Gupta D., Bhattacharyya S., Hassanien A.E., Anand S., Jaiswal A. (eds) International Conference on Innovative Computing and Communications. Advances in Intelligent Systems and Computing, vol 1394. Springer, Singapore.

**Mishra, R.**, Jalal, A. S., Kumar, M., & Jalal, S. (2022). A deep learning approach for the early diagnosis of Parkinson's disease using brain MRI scans. International Journal of Applied Pattern Recognition, 7(1), 64-77

## CO-CURRICULAR

Worked with various clients as a freelance machine learning engineer

Graduate Orientation Leader (New York University)

Research Assistant (New York University)

Teaching Assistant (GLA University)