

Rohan Tuli

rohann.tulii@gmail.com | +44 7478121106 | [LinkedIn](#) | [GitHub](#)

London, United Kingdom

Education

University of Sussex (Grade: **Distinction, 81%**)

Master's in Artificial Intelligence and Adaptive Systems (M.Sc)

Brighton, UK

September 2021 - September 2022

- Awarded 85% scholarship towards education and accommodation from the British Computing Society and the University of Sussex (Informatics International Masters award & Sussex India Scholarship).
- Relevant courses: Algorithmic Data Science (Databases, MapReduce & AWS academy – cloud compute), Advanced Natural Language processing, Machine Learning, Image Processing, Adaptive Systems, & Mathematics and Computational Methods for Complex Systems.
- Dissertation: Unsupervised lesion detection and segmentation using autoencoders.

NMIMS University (CGPA: **3.37**)

Bachelor's in Computer Engineering (B.Tech)

Mumbai, India

July 2017 – May 2021

- Relevant courses: Software Engineering, Databases, Computer Networks, Distributed Computing, System Security, Data Structures, Operating Systems, Design & Analysis of Algorithm, Data Warehouse and Mining, Business Visualization and Predictive Modelling.

Experience

NMIMS University

Researcher

Brighton, UK

October 2021 – March 2022

- Mentored undergraduate students of NMIMS university remotely to develop a video encryption algorithm with 50% lower time complexity and higher resistance to cryptanalysis attacks than AES.

University of Sussex

Teaching Assistant

Brighton, UK

October 2021 – January 2022

- Assessed midterm papers of undergraduate students for the subject, databases and conducted support sessions for math and programming.

Visio Ingenii, UK

Research Assistant

Mumbai, India

May 2020 – April 2021

- Spearheaded research, design, and implementation of an algorithm for automatic detection and prediction of lung tumors in CT DICOM with an accuracy of 92% using Medical Image Processing, Computed Tomography Texture Analysis and Deep Learning techniques.
- Conceptualization and implementation of the algorithm was managed using Software Development Life Cycle (SDLC) and SCRUM under the guidance of Dr Nagachetan Bangalore (CEO, Visio Ingenii) and a certified radiologist.

Visio Ingenii, UK

Software Developer Intern (MMRDA's Automated Smart Parking Management Project)

Mumbai, India

April 2020 – April 2021

- Contributed to the application of a tender worth over \$1,000,000 and assigned as the Single Point of Contact between the technology partner and Mumbai Metropolitan Region Development Authority for all communications.
- Orchestrated site surveys and collected relevant business intelligence data for procurement of hardware required for implementation of Video Analytics and Video Management Systems spread across 13 parking lots in Bandra Kurla Complex, Mumbai.
- Assisted in developing and amalgamating hardware with the Integrated Control and Command Centre and, training and testing of proprietary video analytics solutions such as Automatic Number Plate Recognition (ANPR), Suspicious Activity Detection, Vehicle Orientation Detection.
- Awarded a letter of appreciation from the Metropolitan Commissioner, MMRDA, Mumbai for participation and timely completion of the project.

Visio Ingenii, UK

Software Developer Intern (Thane Smart City)

Thane, India

May 2019 – July 2019

- Provided technical assistance, integrated Video Management System with the hardware and appointed as Single Point of Contact for the stakeholders.
- Represented the company at ConneCTechAsia Marina Bay Sands, Singapore, interacted and gave technical presentations to international investors and potential buyers of software solutions.

Projects

Unsupervised autoencoders for anomaly detection in Brain MRI | *Medical image analysis, unsupervised anomaly detection* May 2022 – August 2022

- Conceptualized, implemented, and analyzed deep autoencoders, variational autoencoders, vector quantized variational autoencoders and residual autoencoders for lesion detection and segmentation using TensorFlow, Keras, NiBabel and OpenCV on Google Collab and GPUs.
- Evaluated models for detection and segmentation using latent space analysis and image postprocessing which revealed the highest DICE score of 0.373 for segmentation (VAE) and 0.925 AUPRC for detection (VQVAE).

Sentence Completion | *Natural Language Processing, deep learning*

February 2022 – May 2022

- Inspected and designed N-gram, word embedding, and deep learning (BERT and RoBERTa) based language models for automatic sentence completion and analyzed their performance using accuracy, entropy, uncertainty, and perplexity.
- Engineered the models using PyTorch, NumPy, Pandas and SciPy with RoBERTa having the highest accuracy of 78 and 82%

Analysis of Malignant Tumors (Visio Ingenii) | *Medical Image processing, deep learning*

May 2020 – April 2021

- Led development of an algorithm for detection and extraction of lung tumor cells using image processing and deep learning techniques which obtained a testing accuracy of 92%.
- Spearheaded research in medical DICOM pre-processing, segmentation, texture feature extraction and, supervised and reinforcement learning methods using libraries such as PyDicom, TensorFlow, Keras, OpenCV & SciPy.

Technical skills

Programming & platforms: Python, C, C++, Java, JavaScript, HTML/CSS, SQL, SAS, TensorFlow, Keras, NumPy, Pandas, SciPy, PyTorch, OpenCV, PyDicom, NiBabel, NLTK, Spacy, Firebase, Hugging Face, Postgres, NoSQL, AWS – RDS & EC2, MapReduce, Agile and SDLC, and PySpark.

Integrated Development Environment known: PyCharm, Jupyter Notebook, Android Studio, XCode, MATLAB, Visual Studio, AutoCAD, Wireshark, SAS Business Analytics, SAS Enterprise Guide & SAS Miner.

Document creation: Latex, Microsoft Office suite.

Publications

- [PixJS: A novel Chaos-based approach for Image Encryption](#) – published in Wiley's Concurrency and Computation: Practice and Experience. ISSN:1532-0634 (Impact factor: 1.831)
- [PixAdapt: A novel approach to adaptive image encryption](#) - published in Chaos, Solitons & Fractals. ISSN: 0960-0779 (Impact Factor: 9.922)