Rohan Tuli

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London, United Kingdom

Motivated by the passion for innovation and a strong commitment to delivering exceptional results while solving complex problems by pushing boundaries. My work is characterized by a deep sense of pride and an unwavering belief in continuous improvement. Technical proficiency, exceptional communication, and interpersonal skills are among my core assets, allowing me to bring significant value to any team.

Education

University of Sussex (Grade: **Distinction, 81%**)   Brighton, UK
Master's in Artificial Intelligence and Adaptive Systems (M.Sc)   *September 2021 - September 2022*
- 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**)   Mumbai, India
Bachelor's in Computer Engineering (B.Tech)   *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

University of Sussex (Emteq labs)   London, UK
Research Assistant   *March 2023 – present*
- Collaborating with Emteq labs to build a workflow for virtual eyeglass try-ons using state-of-the-art deep learning models for 3D face reconstruction and eyeglass rigging.
- Developing a face reconstruction pipeline using Facial Alignment & Deep 3D Morphable Models with achieving high fidelity, low time complexity, and accurate geometric calibration.
- Implementing algorithms and generating synthetic datasets using PyTorch and TensorFlow, which are built and tested on Dockers.

University of Sussex   Brighton, UK
Teaching Assistant   *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   Mumbai, India
Research Assistant   *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 the CEO and a certified radiologist.

Visio Ingenii, UK   Mumbai, India
Software Developer Intern   *April 2020 – April 2021*
- 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.
- Engineered and transformed data using SQL and Python, which was utilized to build Tableau dashboards for data-driven insights and recommendations.
- 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.

- 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.
- Awarded a letter of appreciation from the Metropolitan Commissioner, MMRDA, Mumbai for participation and timely completion of the project.

Visio Ingenii, UK   Thane, India
Software Developer Intern   *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   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.
- Analyzed and visualized healthy and unhealthy samples which were used to derive data driven insights & representation learning.
- 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   February 2022 – May 2022
- Inspected and designed N-gram, word embedding, and transformer (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%

Epidemic Modelling   November 2021 – January 2022
- Conducted analysis and simulated the behavior of the SIS and modified SIS epidemic model by means of deterministic and Gillespie's stochastic simulation approach using NumPy, SciPy and Matplotlib libraries.

Analysis of Malignant Tumors (Visio Ingenii)   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, SDLC, Dockers and PySpark.
Integrated Development Environment known: PyCharm, Jupyter Notebook, Android Studio, XCode, MATLAB, Visual Studio, AutoCAD, Wireshark, SAS Business Analytics & SAS Enterprise Guide.
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)