

**MOHIT RAJPUT**

ML | DL | AI | Data Collection | Data Engineering | ML Experiment Design

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Full resume: <https://mr901.github.io/resume/>

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| **Areas of Professional Interest** | |
|  | * Data Product Management, Architect, Collection, Engineering, Research, Deployment, and Maintenance (E2E) |
| * MLOps with Central and decentralized Architecture |
| * EDGE devices based solutions |
| * Statistical, Machine and Deep Learning; Natural Language Processing (NLP), ChatBots & Computer Vision |
| * Reinforcement, Unsupervised Learning and Recommendation system |

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| **Work Experience** | |
|  | **Amazon Seller Services Pvt Ltd** - Analytics Technology and Engineering (ATE)  Data Scientist II Apr’22-Present |
| Day Ahead Capacity Planning (Supply Chain)   * Providing volume forecast for last mile, to delivery stations to decrease under and over booking of logistics   ***Tags: Time Series, Curve Matching, ML, Sagemaker, EC2, Lambda, Event Bridge, S3, Dashboard, Monitoring*** |
| Common Utilities Python Lib (V1)   * A small library for credentials accessing, SQL jobs creation and analysis, logger, s3 interaction, operations, clustering, data retrieval from quip documents, error calculations, data analysis and transformation utilities.   ***Tags: AWS services, DB, SQL, Logging, Analysis, Sync Quip*** |
| Capacity Planning Performance Evaluation, Analysis & Dashboard   * Evaluate performance and provide multiple insights related to BAU, peaks, plans for current state and area for improvement, possible areas having data drift   ***Tags: Time Series, Data Drift, EC2, QuickSight, S3, Excel*** |
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| **Cargill** - Cargill Digital Labs  Machine Learning Software Engineer Jun’19-Apr’22 |
| ML labs v2 setup   * Defining ways to Work with ML projects and other applications having ML related features * Brining sustainable practices for accelerated development while maintaining the agility * Planning phase of data governance, 3rd Party Data Annotators, Portal development for data tagging, selection and versioning, data collection experiment designs and pipelines. |
| Estimating Growth Indicator of Chicken (POC then MVP)   * Estimating the weight and age of the chicken based on video recording done using the mobile camera.   ***Tags: Agile Experiment Setup & Design , Object Detection, Image Standardizer, Estimator, Ensembling*** |
| Defective Nugget Detection and Accounting (POC then MVP)   * Defective Nugget Detection and Tracking on conveyor belt with output projected on display for manual removal.   ***Tags: Jetson Nano, Raspberry Pi, Ardino Uno, Edge device, Object Detection, Tracking, on-premise, real-time*** |
| HR Chatbot (Myco) (MVP)   * Initial product version was launched for Singapore and Australia with capability for form filling, ticket creation, ticket checking, easy data integration from excel sheet   ***Tags: Rasa, Redis, NLU, NDM, NLG, NLP, Chatbot, MS Excel*** |
| Financial Commentary Generation (POC)   * A utility for table-to-text based on template method was developed for the initial stage, b/c of the lack and too much fragmentation of data source this approach was deemed fit. |
| YOLO v5-v4 training and deployment integration on AWS suitable to multiple tailored needs.  ***Tags: Computer Vision, Sagemaker, ECR, S3, Lambda Function, API Gateway, IAM, CloudWatch*** |
| Information Extraction from Ship Invoices (POC)   * Extracting multiple information through the information that was shared in old and current emails.   ***Tags: Text-to-Table, Analytics; Regex, Python Email to DB*** |
| Other   * **Streamlit** based Computer Vision Utility for parsing, labelling, visualizing annotation, with support for Yolo threshold adjustment for object detector and evaluate performance. * MiApp feature involving weather data visualization using the **GIS data**. |
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| **ShieldSquare (Radware)** - R&D  Data Scientist Apr’18-May’19  Associate Research Engineer Jun’17-Mar’18 |
| * Iterative Clustering and Learning based System to Separate traffic Apart (ICLSSTA ) * Solely developed a framework, which develop and evaluate unsupervised learning solution in much depth and this from a single config file.   ***Tags: Framework, Clustering, Anomaly, Outlier, Conceptual Drift Detection, Ensembling, Support all Dimension reduction, Anomaly, and Clustering Algorithm from Sklearn, Add. Custom Algorithm.*** |
| * Adaptive Action Taking (AAT) * Developed a generalized module named which makes use of reinforcement learning to automatically take action on incoming traffic on the web property.   ***Tags: Reinforcement Learning, Multi-Armed Bandit, Smart handling of Business Limits, Self-Adjusting*** |
| * Deep Behaviour Analysis (IDBA) * Partially developed a module named Intent based, which utilizes LSTM to yield encoded features and scores that are used with supervised, anomaly and clustering.   ***Tags: RNN, Auto-Encoder, Semi-Supervised Learning, Sequence Based Detection, Deep Learning*** |
| * Threshold Online Reinforcement (ThOR) * Helped developed a module named, which makes utilizes online learning to develop a probability score distribution over of isotonic regression for action taking.   ***Tags: Isotonic Regression, Online Learning, Self-Adjusting, Smart handling of Business Limits*** |
| Second Level Module Integration   * Developed and implemented end to end machine and reinforce learning based solutions using ICLSSTA-AAT, IDBA-ICLSSTA-AAT, & IDBA-ThOR   ***Tags: Semi-Supervised, Supervised, unsupervised, reinforcement learning, behaviour analysis****.* |
| * Titan Batch Analyser * Developed and Implemented, which utilizes multiple browser signatures, behaviour based rules, regular expressions and databases to generate a suspiciousness score to take action on traffic.   ***Tags: SQL & Python Implementation, ETL, Advance SQL operations, Handling Multiple Datasets*** |
| * Rule Scripts * Developed and Implemented multiple rules which were based on network, device and browser fingerprint, and behaviour of the visitors. These were adequately balanced between causal and correlated, yielding negligible FP.   ***Tags: Domain knowledge, Behaviour Analysis, Rules development*** |
| * Rule Mining * Created a Recommendation System for the highlighting possible bad signature coming in the traffic.   ***Tags: Associate Rule Mining, Text Data Pre-processing*** |
| Other   * Developed Dashboard, Visualization and Analysis, spreadsheet to understand the whole behaviour of the traffic. Partially interactive visualization sheets were also developed in python.   ***Tags: SQL and Spreadsheet/Python Implementation, Visualization, Result Sharing***   * Developing Dynamic Moving **Collective Intelligence** which can evolve while working across multiple sid. |
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| **Python Package Developed** | |
|  | **Algorithmic Machine Learning Exploration & Exploitation Tool (AMLEET)** |
| * A python package for multiple purpose code for **logger wrapper, configuration, notification, cloud storage integration, local database, Redis Big query integration** * Other application involve numerous **computer vision functionalities** ranging from video stream creation to prediction wrapper for face detection, recognition, pose estimation and such. * Functionalities for **NLP related functions** for data cleaning pipeline, supervised and unsupervised ML integration. |
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| **COCO Transformation Utility (CTU)** [[pypi link](https://pypi.org/project/ctu/)] |
| * A python package to perform the same **transformation to coco-annotation** as performed on the image. * Provides the capability to create augmented images and annotations. * Capability of visualizing multiple kinds of annotations on images. |

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| **Patent & Research Paper** | |
|  | * **First Author**. “System and method for detecting bots based on iterative clustering and feedback-driven adaptive learning techniques”; us US20200099713A1. * **Second Author**. “System and method for detecting bots using semi-supervised deep learning techniques”; us US20200099714A1. * **First Author**. “Electric field and current assisted alignment of CNT inside polymer matrix and its effect on electrical and mechanical properties”, in International Journal for the Science and Technology of Polymers 2016. |

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| **Education** | | |
|  | **Indian Institute of Technology, Roorkee** Jul’12-Jul’17  B.Tech. + M.Tech. (Dual Degree Course) in Metallurgy and Material Engineering, CGPA: 7.152/10 | |
| Ministry of Human Resource Development (MHRD) Scholarship for M.Tech. as for qualifying GATE. | |
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| **Udacity Nano Degrees** | **Certified Courses from Coursera, Edx, Udemy** |
| * Data Product Manager, 2021 * Computer Vision, 2020 * Artificial Intelligence, 2018 | Details on this link <https://mr901.github.io/resume/> |

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| **Skills and Tools** | |
|  | **ML Languages/Framework :** Python, Scikit-learn, TensorFlow, PyTorch  **Other Language:** R, SAS, JAVA, C++  **Other:** Google Big Query, APIs, Docker, Selenium, Redis, Grafana, Kibana, HTML, CSS  **Databases:** SQL, No-SQL  **Software:** Tableau, Excel, XLMiner, Spyder, Jupyter Notebook, RStudio, Gimp, SolidWorks  **Cloud Computing Services:** Google Cloud Platform, Amazon Web Services, Microservices Architecture  **Cloud Data lakes**: S3, Cloud Storage, Drive, pcloud  **Hardware:** Jetson Nano, Raspberry Pi, Arduino Uno, IP Cameras, Sensors, basic electrical devices and circuits  **Languages:** English(SRW), Hindi(SRW) |

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| **Projects** | |
|  | IP camera (RTSP protocol) to consistent **HTML Live Stream** with offline Data Sync |
| Accounting for Pipe Bundles being Exported [[demo link](https://youtu.be/hJdGpM8_ADo)] |
| **Edge Device** based CV application for counting of sheets processed in a workshop [[demo link](https://youtu.be/ZMsrct_866k)] |
| Sticker Detection and OCR [[demo link](https://youtu.be/de7EYj7bFEI)] |
| Image to Image Search – Jewellery [[demo link](https://youtu.be/DmrSy9Ivobc)] |
| Image to Image Search - Flicker8k [[demo link](https://youtu.be/DmrSy9Ivobc)] |
| Face Detection, Face Landmark Detection and Face Recognition Wrappers [[demo link](https://youtu.be/HxUXtiWylH4)] |
| Human Pose Estimation and Activity Recognition [[demo link](https://youtu.be/Y7LCiZbOmNQ)] |
| WhatsApp based **Chatbot** (Hack around way) |
| **Selenium** based web scrapping and Web Application Control of Tinder & WhatsApp |
| Streamlit based threshold adjustment for object detector and annotation visualizer |
| Additional project details are present on this link <https://mr901.github.io/resume/> |