

Jesal Patel



+91 8140253130 p.jesal.work@gmail.com Ahmedabad,IN <https://rubix-coder.github.io/>

Machine Learning Engineer/ Deep Learning Engineer

SUMMARY

With the professional work experience of 3.7 years in Automotive industry focusing on two wheeler electric-vehicle research and development along with 1+ years of being a meticulous & result-oriented Machine Learning Consultant and Engineer armed with a proven track record of analytical acumen in deploying complex machine learning and statistical modeling algorithms/techniques for identifying patterns and extracting valuable insights. Possesses diverse experience in planning & executing multiple projects and liaising with the key stakeholders to identify & resolve business problem statement and deliver excellent results.

KEY SKILLS

- Machine Learning Methodologies • Optimization Techniques • Data Mining & Analytics
- Predictive & Statistical Modelling • Data Analysis
- Data Visualization • Project Delivery • Predictive Modelling & Analytics • Programming • Process Improvement
- Debugging • Deep Learning Methodologies • Computer Vision

TECHNICAL SKILLS

- **Machine/Deep Learning:** ANN, CNN, LSTM, GRU, GANs
- **Database:** MySQL
- **Statistics/ML:** Linear/Logistic Regression, Ensemble Trees, Gradient Boosted trees
- **Languages:** Python, JavaScript, C, C++, HTML

KEY PROJECTS

- **Style Transfer using GAN | Tech Stack: Python | Apr'21**
 - Objective: To build a Generative adversarial model(modified U-Net) which can generate artificial MRI images of different contrast levels from existing MRI scans.
 - Solution: **CycleGAN** to translate the style of one MRI image to another, which will help in a better understanding of the scanned image. Created T2 weighted images from T1 weighted MRI image and vice-versa.
- **Domain: Classical Reinforcement learning | Tech Stack: Python | Feb'21**
 - Objective: A leading app-based cab provider in a large Indian metro city believes **retention of good cab drivers** is a crucial business driver. they wanted to use **RL-based system for assisting cab drivers** can potentially retain and attract new cab drivers.
 - Solution: Created the environment and an RL agent that learns to choose the best request and trained the agent using **vanilla Deep Q-learning (DQN) - Architecture 1**
- **Domain: Computer Vision | Tech Stack: Python | May '20**
 - Objective: To develop a cool feature in the smart-TV that can **recognize five different gestures** performed by the user which will help users control the TV without using a remote.
 - Solution: Performed comparison of different combination of neural networks and evaluated the performance and Designed and trained on customized CNN-RNN architecture which consists of 2DCNN followed by GRU.
- **Greenvolt MANTIS : Electric Automotive | Tech Stack: C, Python | Feb'16 - Jun'20**
 - Objective: To develop the electronics of under 250W category electric two-wheeler with a payload capacity of 100Kg.
 - Solution: Researched, designed, developed and programmed electronic speed control unit with trapezoidal control of PMSM (permanent magnet synchronous motor) on C2000 series. Designed and programmed DAQS (Data Acquisition systems) with remote accessibility for thermal and electrical performance analysis of Machine and electronic components.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer

Jan '21 - Apr '21

Think Dignity International

Uttarakhand, IN

Analytics & Machine Learning Methodologies

- Conducted extensive research on **Optical filtering techniques** and image statistics for the automotive sector.
- Applied various machine learning techniques to build dynamic **object-detection model**
- Worked on planning and strategizing the ANPR (Automatic number plate recognition) project flow.

Optimization & Algorithm Development

- Developed an **algorithm** for **batch evaluation and testing of image dataset** using the concept of creating batches with similar image statistics of given dataset.
- Deployed multiple **loss minimization** & optimization techniques
- Led the development of a **image cropping and annotation tool**.

Greenvolt Mobility LLP

Feb '16 - Jun '20

Gujarat, IN

President - Electronics Systems

- Directed plans and designs for the production line of PMSM Controller, Customized Testing-Instruments, and Pre-Production and Post Assembled Drive Diagnostic products.
- Determined system requirements and documented and implemented necessary improvements.
- Performed A/B testing, Machine Electrical Parameter analysis to test validity and consistency of operations.

Vice president - Electronics Systems

- Designed and implemented domain work flow structure and control systems to accelerate cross domain tasks with ease.
- Programmed computer applications and tools using Control Suite (TI), Code Composer Studio (CCS), and object-oriented languages to enable stability and reuse of programs.

Development Engineer - Electronics Systems

- Used various software including Ms Excel, Matlab, Multisim, pSim, Eagle, KiCad, AutoCAD, CCS, pyCharm.
- Developed electrical schematics and PCB design for various inter project instruments and peripherals using Ki-Cad, Eagle software.
- Responsible for designing and implementing systems and electrical equipment for commercial and domestic facilities.

INTERNSHIPS

Technical Writer

Jan '21 - Mar '21

helloML.org

- Writing technical articles on:
 - Machine Learning concepts, Algorithms
 - Deep Learning
 - Neural Networks

CERTIFICATIONS

- **Advanced Computer Vision** | Upgrad | Jun '21
- **Artificial Intelligence Foundations** | LinkedIn | Dec'20
- **AWS Foundations: Machine Learning Basics** | Amazon Web Services | Nov'20
- **Fundamentals of Data Processing** | Analytica Datalab Inc. | Nov'20
- **Forensic Psychology** | Criminal Profiling | May'21

ADDITIONAL ACHIEVEMENTS

- Certificate of Recognition | helloML.org | Jan'21

Awarded for the Most read article of the month for the topic : Neural Network - Algorithms inspired by the brain !

EDUCATION

Masters in Machine Learning and Artificial Intelligence

May '21 - Present

Liverpool John Moore's University

Liverpool, UK

Research work in Computer Vision

- **Course Modules:**
 - Introduction to Research and Research process
 - Research Design
 - Literature reviewing | Research Project management
 - Scientific ethics | Report writing and presentation

Post Graduation Certification in Machine Learning and Artificial Intelligence

Mar '20 - Apr '21

IIIT-Bangaluru

Bengaluru, IN

Integrated Masters Program - PgD + Masters

- **Course Modules:**
 - Data Analysis in Excel | Analytics Problem Solving | Data Analysis using SQL | Introduction to Python
 - Programming in Python | Python for Data Science | Inferential Statistics | Hypothesis Testing
 - Introduction to Machine Learning and Linear Regression | Logistic Regression | Tree Models
 - Advanced Regression | Model Selection and practices | Unsupervised Learning : clustering
 - Deep Learning | Neural Networks | Classical Reinforcement Learning | Model Deployment

Bachelors in Electronics and Communication Engineering

Aug '14 - Apr '18

Indus University

Ahmedabad, IN

- **Course Modules:**
 - Basic Electronics | Advance Electronics | Power Electronics | Circuit Theory
 - Digital Communication technology | Wireless communication technology | Mobile communication technology
 - Optical Communication | Radar and Navigation | Television Engineering | Antenna and Wave Propagation
 - Project management | Computer vision | Capstone project
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