Yesha Gosaliya

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Education

- **Nirma University** — **Ahmedabad , India**
  Bachelor of Technology - Instrumentation and Control - GPA : 7.1/10.0 — ***July 2016 - June 2020***
  Courses: *Analog-Digital communication, Microprocessors-controllers, Signals Processing, Industrial Electronics-Automation, Robotics*
- **Minor Specialization - Computer Science**
  Courses: *Analysis of Algorithms, OOPs, Data Structures, DBMS, Artificial Intelligence, Networking, Web Development, Cloud Computing*
  Non Credited Courses: *Computer Vision and Image Analysis, Mobile Robotics, Deep Learning, Reinforcement Learning*

Experience

- **Matrix Comsec Pvt. Ltd.** — **Vadodara, India**
  Associate Software Engineer (R&D - AI/ML/DL) — ***August 2021 - Present***
  - **Pipeline Design:** Leverages point cloud data for an Augmented Reality application to enable 100% real-time assembly assistance.3D object detection was performed using **MTCNN and DAN algorithm** followed by a point set registration technique to track the object motion and landmarks for face alignment/detection models.
  - **Software Test:** Practiced regression testing of the in-house software to facilitate integration in the CV pipeline. Debugged and troubleshot the C++ code base in Microsoft Visual Studio which minimize the defects by **10 %**
- **Target Solar** — **Remote - QLD, Australia**
  Project Coordinator — ***Jan 2021 - August 2021***
  - **Predictive Maintenance of an Engine:** Built exponential degradation model, similarity-based prognostic approach, and LSTM model to predict engine RUL.
  - Developed **LSTM, RNN, 1D CNN, and CNN-SVM models** to predict engine failure 50 cycles ahead of its time with **0.92 F1 score**; Utilized Sensitivity analysis and SHAP values to find important features from these black-box models.
- **Tuvix Engineering Solutions** — **Ahmedabad, India**
  Engineering Trainee (Product Development - Deep Learning) — ***July 2020 - June 2021***
  - Developed a Deep Learning solution for the smart city with an API that had be integrated to the mass surveillance platform detecting the License Plate number.Conducted performance analysis of Feature APIs,reduced run-time by **7%**
  - Developed, optimized, and debugged SolidWorks APIs for best CAD model implementations using **C++,C#, Rockchip,Unity.**
- **Institute of Plasma Research - part of ISRO** — **Gandhinagar, India**
  (Final Year UG Thesis) Research Assistant - Robotics/ML — ***Jan 2020 - May 2020***
  - Sampling-based planning approach executed with **A* algorithm** for navigation in unknown environments.Implemented **LD-PRM** to generate roadmaps and adjustment algorithm to avoid dynamic obstacles using Matplotlib with total execution time under **200ms.**
  - Python based application follows **sfm pipeline** to locate the vehicle using visual information.Benchmarked the output with built-in OpenCV functions;enforced RANSAC algorithm for finding best fundamental matrix which improved the accuracy of output by**30%**
- **Speech Research Lab: DA-IICT** — **Gandhinagar,India**
  Summer Intern: Research Assistant (Visiting Scholar) — ***May 2019 - November 2019***
  - Engineered Computer Aided Diagnostics project for detection of **Parkinson disease** using Signal Processing techniques
  - Trained a Neural Network of about **56000 audio wavelets** from UAcorpus data-set to achieve an accuracy of **89.5 percent** with the system to predict speech of patient from audios of healthy people with **F0 detection and dysarthic severity index**

Major Projects

- **Market Analysis for Intelligent Flat-Bread Maker:** Identified target sales audience for an intelligent and automatic flat-bread maker, Rotimatic, based on market segmentation and consumer behavior analysis from business performance data, as part of its marketing proposal. Predicted increase in sales on identified target audience by at least **3%**by trends and metrics identified by visualizations
- **Demographic Factors Influencing COVID-19 Vaccine Trends in the US:** Built an interactive tool which takes in dynamic user demographic data and runs a logistic regression data model to demonstrate the percentage probability of an individual of getting a vaccination in USA. The weights have been calculated based on findings through EDA and trends observed in Tableau visualizations.
- **Cognitive Fatigue Analysis with fMRI data:**Built a semi-supervised model that predicts different levels of cognitive fatigue in subjects with/out Traumatic Brain Injury (TBI) using their fMRI scans (with 86%acc.).
- **Cognitive Assessment in Children with Action Recognition:** Built a multi-modal network that utilizes body key-points, object detection, and optical flow for activity recognition to assess cognition in children by analyzing their executive functions through multiple standardized physical tasks and later generate an analysis between different models.

Skills

- Languages — C/C++, Python,JAVA, SQL, Bash, CMAKE
- Frameworks — OpenCV, ROS, PyTorch, Sci-kit Learn, Git, Visual Studio, Panda, Flask
- Tools — Kubernetes, Docker,PostgreSQL, MySQL, SQLite, CUDA-GPU, TABLEAU
- Platforms — Linux, Arduino, Raspberry Pi, Visual Studio, LABVIEW, Simulink, MATLAB, Atmega 16/32

Achievements and Extra-Curricular

- Qualified under **top 15 teams** for National competition **'IIC-Institution's Innovation Council**' by Govt.of INDIA-**2020**
- **Research Council of University-IDEA LAB:**Top dept. student to receive grant of **INRxxxxx** for IIOT and ML projects-**2019**
- Credited Course:**Applied Data Science for Engineers**:in collaboration with Indian Institute of Madras-NPTEL (GRADE:75%)-**2019**
- **Technical Event Head:**Image Processing-Industrial Internet of Things in MESA, tech-fest of Nirma University-**2019**
- Qualified for National Competition **'India Innovation Challenge Design Contest'** held by 'DST-Texas Instruments-**2018**
- Mentored **200 students** of Tragad Government School with computer education-**2017**
- Organized a visit to Khoj, a Science Museum based in Ahmedabad, for **150** underprivileged children-**2017**