Venkatesh Desai

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EDUCATION

Northeastern University, Boston, MA - **Khoury College of Computer Science**   Expected Apr 2024
Master of Science in Robotics - Computer Science concentration
- Relevant Coursework – Deep Learning, Reinforcement Learning, Adv. Perception, Algorithms, Natural Language Processing

Indian Institute of Information Technology, IND   Sep 2021
Bachelor of Technology in Mechanical Engineering with Specialization in Design and Manufacturing

SKILLS

- **Languages:** Python, C, C++, MATLAB, JAVA, R, Linux, SQL, bash/ shell scripting, Git, Spark, PySpark
- **Tools:** Pandas, NumPy, scikit-learn, Pytorch, Keras, TensorFlow, OpenCV, GitHub, Power BI, Tableau, Matplotlib, Seaborn
- **Cloud Computing & MLOps:** Azure, AWS, GCP, Docker, Kubernetes, ZenML, MLflow
- **Modeling Techniques**: Classification, Regression, clustering, Neural Networks, Self-Supervised Learning, Time-Series Analysis
- **Certifications:** Machine Learning by Stanford, Deep Learning by deeplearning.ai, Deep Learning for Computer Vision (NPTEL)

EXPERIENCE

Research Assistant and Graduate Teaching Assistant | Northeastern University   Aug 2023 – Present
- Collaborating on enhancing **nnsight** library, a package for interpreting and manipulating the internals of a neural network
- Developing tutorials with **GPT2, Llama** models for users to seamlessly use nnsight library in conducting experiments
- Graduate Teaching Assistant – Assisted a **Deep Learning** course (CS7150), focusing on **Neural Network, Transformers, VAE's, Stable Diffusion**. Designed assignments, conducted TA sessions, organized Quiz and led discussions on cutting-edge research areas such as **GAN's, Image Transformer, and LLM** to help students stay up-to-date of the latest advancements

Co-Founder | iTorque   May 2021 – July 2022
- Designed 20% efficient hydrodynamic gear sets to replace traditional gear sets currently used in the market
- Utilized **k-means clustering** algorithms to segment customer base, this helped us to understand the product market fit
- Designed and implemented a recommendation algorithm to personalize product suggestions for customers
(Key Learnings - Team Collaboration, Communication skills, Business performance, User experience, Lean Startup methodology)

ML Intern | Air India   Nov 2019 – Jan 2020
- Collaborated with backend engineers to build an ML platform for training and inference with CI/CD pipelines
- Reduced **restocking lead times by 15%,** optimizing real-time airline supply chain decisions using a **Random Forest** model
- Achieved a **90% accuracy rate** in classifying user intents, including booking flights, checking flight status, and general inquiry
- Implemented data-driven techniques such as **A/B testing,** resulted in a **20% improvement** in user interface significantly

PROJECTS

Automated Essay Grading (AES)   Feb 2023 – Apr 2023
- Implemented an AES system with **transformer models (BERT, DeBERTa, DistilBERT, GPT-2)** for embedding the essay tokens
- Trained the model utilizing machine learning algorithms like Random Forest, XGBoost, KNN, Neural Networks
- Achieved **higher QWK** scores compared to the EASE model on 8 essay sets, demonstrating an average **increase of 12%**

Heart Disease Prediction   Jul 2022 – Sep 2022
- Identified high-risk individuals for heart disease, applied SMOTE for class imbalance, and performed data preprocessing
- Conducted in-depth **EDA** to uncover patterns, correlations, and potential features influencing heart disease
- Built predictive models using KNN, Naive Bayes, decision trees, gradient boosting and logistic regression with **92% Sensitivity**

Self-Driving Car   May 2020 – Dec 2020
- Developed an autonomous vehicle utilizing a Convolutional Neural Network (CNN) (**NVIDIA End-to-End** architecture) and IoT
- Implemented object detection and synergized traditional computer vision methods with deep learning architecture
- Trained the neural network model on **17,500 diverse images**, achieving **90% accuracy** in the steering angle predictive model

EXTRA-CURRICULAR ACTIVITIES

- Awarded a full scholarship of worth **$1200 for Utility Patent** by the director of IIIT institute during my undergraduate
- Lead team to **Top 5** position among 180 Teams from INDIA, in **NASA International Space Apps Challenge 2020**
- **Utility Patent: A Method and a System for Autonomous Training and Assessing the Gym Users** (App. # - 202141049354)