Venkatesh Desai

Boston, MA | venkateshdesai99 | +1 857-230-6277 | desai.ven@northeastern.edu | venkydesai

EDUCATION

Northeastern University, Boston, MA - **Khoury College of Computer Science** Expected Apr 2024

Candidate for Master of Science in Robotics - Computer Science concentration

- Coursework – Deep Learning, Reinforcement Learning, Adv. Perception, Algorithms, Mobile Robotics, Robot Mechanics and Control

Indian Institute of Information Technology, IND Sep 2021

Bachelor of Technology in Mechanical Engineering with Specialization in Design and Manufacturing

- Position of Responsibility – CODIGO club coordinator, Cultural Secretary, Placement Cell Secretary

SKILLS

- **Languages and OS:** Python, C, MATLAB, Linux, SQL, Shell Script
- **Applied CS:** Data Science, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, AI
- **Deep Learning Methodologies:** CNN's, RNN's, Transformers, VAE's, DAE's, Self-Supervised Learning, Time-Series Analysis
- **Tools and Frameworks:** Pandas, NumPy, scikit-learn, Pytorch, OpenCV, Matplotlib, Seaborn, Docker, git, AWS, GCP

EXPERIENCE

Graduate Teaching Assistant – CS 7150: Deep Learning Aug 2023 – Present

- Assisting PhD course, focusing on **Neural Network, Transformers, VAE's, Stable Diffusion**, crucial in modern research
- Conducting TA hours and **GAN, Image Transformer, and LLM** discussions, increasing academic research engagement

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

Summer Intern | Indian Institute of Information Technology May 2020 – Dec 2020

- Developed a **gym assistant robot** to guide users through workout routines and posture monitoring to prevent injuries
- Generated a gym layout map using Lidar cloud points and **Hector-SLAM algorithm**, enabling efficient navigation for the robot
- Detected **33 key human body points** with an **accuracy of 95%**, facilitating real-time posture correction guidance for users

ML Intern | Air India Nov 2019 – Jan 2020

- Implemented a **Decision Tree** model, reducing **restocking lead times by 15%** and decreasing excess **inventory levels by 10%**, optimizing real-time inventory decisions in the airline's supply chain
- Leveraged **Long Short-Term Memory (LSTM)** networks, achieving a **90% accuracy rate** in classifying user intents, including booking flights, checking flight status, and handling general inquiries, significantly improving user satisfaction

PROJECTS

Shadow Removal via Shadow Image Decomposition (*SP-Net: VGGNet, ResNeXt; M-Net: U-Net***)** Sep 2023 – Oct 2023

- Engineered a deep learning framework, fusing physics-based modeling with data-driven approaches, to predict illumination parameters using SP-Net and shadow mattes using M-Net for shadow-free image reconstruction
- Demonstrated a **40% error reduction (RMSE from 13.3 to 7.9)** over prior methods on ISTD benchmark dataset

Automated Essay Grading (AES) (*Transformers- BERT, DeBERTa, DistilBERT, RoBERTa, GPT-2*) Mar 2023 – Apr 2023

- Created an AES system utilizing pre-trained transformer models, leading to improved essay grading efficiency
- Achieved higher QWK scores compared to the EASE model on 8 essay sets, demonstrating an **average increase of 12%**

Self-Driving Car (*Convolutional Neural Network, Raspberry Pi, Arduino*) May 2020 – Nov 2020

- Engineered an autonomous car trained on **17,500 images** using fine-tuned **NVIDIA End-to-End** Deep Learning architecture
- Showcased model's **75% accuracy** in steering angle prediction, highlighting autonomous navigation effectiveness

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**
- **Certifications:** Coursera- Machine Learning, Deep Learning, Deep Learning for Computer Vision, Robotics
- **Utility Patent: A Method and a System for Autonomous Training and Assessing the Gym Users** (App. # - 202141049354)