Tarush Singh

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EDUCATION

Northeastern University **Boston, MA, USA**
Masters of Science in Information Systems *Sep 2022 - Apr 2024*
- Relevant Courses: Neural Network Architecture, High Performance Parallel ML, Data Science engineering

SRM Institute of Science and Technology **Chennai, TN, India**
Electronics and Communication engineering *Aug 2014 - Apr 2018*
- Relevant Courses: Intro to Robotics, Data structures and Algorithms, Soft Computing

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, HTML, SQL
Libraries and Tools: Tensorflow, PyTorch, Sklearn, Pandas, Numpy, OpenCV, Huggingface, ONNX, Weights&Biases, NLTK
ML Architectures: CNN(YOLO, ResNet, Inception), Transformers(Vision Transformers, BERT), RNN(LSTM, RNN, RCNN)
Cloud & API tools: Postman, AWS (Lambda,EC2,S3,SNS,SES,Sagemaker), Azure (Functions), REST, Terraform, Git, Docker

WORK EXPERIENCE

NLP Development Engineer
HappSales pvt ltd, Bengaluru, India *Sep 2019 - Apr 2022*
- Developed an NLU (Natural Language Understanding) system using RASA to enable users to perform basic CRUD (Create, Read, Update, Delete) operations within the CRM application through natural language commands
- Designed user-friendly interfaces with speech-to-text for a seamless user experience when interacting with the NLP functionalities
- Integrated the NLP engine with AWS Lambda for efficient and scalable hosting.
- Collaborated with app developers to ensure a smooth integration of the NLP solution
- Contributed to a 10-15% increase in user productivity by streamlining workflows and minimizing clicks
- Documented the NLP engine tools and common FAQs to facilitate knowledge transfer and future development efforts Demo

PROJECTS

- **IROS IEEE Manipulator Arm Challenge** (SRM, Mar 2018 - Jun 2018)
  Led development of Robotic manipulator arm for IROS Fan challenge resulting in phase 1 win. Implemented AI for fan detection (IEEE publication). Link
- **Medical Telepresence** (SRM, Apr 2016 - Oct 2016)
  Designed a medical telepresence system using skeleton mapping to map user movement to robotic torso while providing virtual reality feedback. Presented the findings at BITS Pilani Link
- **Multimodal Scene Description** (Northeastern University, Sep 2023 - Dec 2023)
  Built a custom image explanation model (92% accuracy) using attention mechanisms, optimizing inference speed by 25% with TensorRT.
- **Natural Language User Interface** (SRM University, Sep 2017 - Dec 2017)
  Conceptualized a speech recognition based Natural Language user interface with intent classification (92% accuracy) for human machine interaction Post
- **Model Evaluation and Parameter Mapping** (Northeastern University, Feb 2023 - Apr 2023)
  Analyzed data science fundamentals and used SHAP analysis to improve machine learning model performance. Authored a research article on Medium exploring bagging and boosting techniques. Medium
- **Dominex** (Northeastern University, Sep 2023 - Nov 2023)
  Led development of a real-time drug development tracking app (Java) with user-friendly interfaces for data access and collaboration leveraging Object Oriented Programming concepts (OOP). Engineered cross-organization communication and reporting. Link

EXTRACURRICULAR ACTIVITIES

- **Electronics domain head** in SRM Team Humanoid robotics club - Sep 2014 - Apr 2018
- **Gold at Robogames San Jose** for Bipedal Robot Obstacle race - Apr 2018
- **Haptic navigational shoes** designed for visually impaired and secured 2nd place at Konvolve hackathon -Apr 2018