MONICA MUNNANGI

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EDUCATION

UNIVERSITY OF MASSACHUSETTS, AMHERST   **2018 - 2020**
Master of Science (MS) in Computer Science
Selected Courses: Machine Learning, Neural Networks, Advanced Natural Language Processing, Algorithms for Data Science, Advanced Computer Networks

VELLORE INSTITUTE OF TECHNOLOGY   **2014 - 2018**
Bachelor of Technology (B.Tech) in Computer Science and Engineering
Selected Courses: Data Mining, Artificial Intelligence, Algorithm Design and Analysis, Concurrent and Distributed Systems, Information Security, Image and Vision computing

EXPERIENCE

Yale School of Medicine | Postgraduate Researcher   **Spring 2018**
- Working on implementing a Cycle Generative Adversarial Network for Manifold aligning in single cell data to align the datasets.
- Working on a Natural language Processing model to classify patient physician communication and to improve message triage.
  Technologies used : Python, TensorFlow, D3.js, Docker, Vue.js

Information Fusion Lab | Graduate Student Researcher   **Spring 2020**
- Model generates a sequence of latent representations of patient diagnosed with Alzheimer's status across the time horizon, providing more informative modeling of temporal relationships between the patient's history and future visits.
- Developing an end-to-end model that takes the MRI scans to analyze and to identify the high risk cohorts for early intervention and treatment planning.
  Technologies used : Python, PyTorch, Gypsum

GE Healthcare, Waukesha | Data Scientist, Intern   **Summer 2019**
- Developed a Neural Network classifier to identify if a chest tube is present in an X-Ray image and achieved an accuracy of 95% trained on 6k images, to help radiologists make better decisions which is now deployed.
- Developed a solution using VGG architecture to separate obstructing radiopaque objects (Jewelry, buttons etc) in a chest X Ray image from non-obstructing radiopaque objects (Pacemakers, EKG leads, etc) with 14,000 images and achieved an accuracy of 89% to help reduce the number of redundant X-Rays.
  Publication : K. Younis, Y. Shah, M. Munnangi, K. Nye, G. Rao, J.M. Sabol, Chest Tube Detection on Chest X-Ray Images Using Convolutional Deep Neural Networks at European Congress of Radiology, Vienna 2020
  Technologies used : Python, Keras, Tensor flow

PROJECTS

Autogeneration of Captions for Medical Images   **Fall 2019**
- Created Baselines - Trained Flikr 8k image dataset on a pertained VGG16 model for image captioning and obtained BLEU 1 scores of 0.507300.
- Worked on Indiana University Chest X-ray images which have 7,470 pairs of images along with reports and achieved a BLEU 1 score of 0.168, this would assist radiologists in X-Ray assessments.
  Technologies used : Python, Keras, TensorFlow Scikit-learn

Early Prediction of Sepsis from Clinical Data.   **Spring 2019**
- Attempted to predict the onset of Sepsis in patients using historical patient data.
- Precisely used ICU and timestamp data of over 40,000 patients and used baseline logistic regression and random forests to predict the onset of Sepsis as a baseline.
- Developed a Long Short - Term Memory (LSTM) model using PyTorch which led to F1 score of 0.82.
- Our model could predict the onset of Sepsis 6 hours before its clinical occurrence to assist patients with high risks of sepsis and give earlier treatments.
  Technologies used : Python, PyTorch, Scikit-learn

TECHNICAL

Programming languages & OS	Python, R, C++, JavaScript, React.js, macOS, Linux, Docker, SQL, PostgreSQL, Github, Kubernetes, Vue.js
Machine Learning & Big Data	Scikit-learn, Numpy, PyTorch, TensorFlow, Pandas, Keras, OpenCv