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Sai Nikhil Thirandas

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Portfolio | LinkedIn | Coursera
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A mathematician and a Software Engineer solving complex challenging problems for 7 + years. Looking for a long-term career in research oriented roles in the field of Machine Learning (Computer Vision / Natural Language Processing).

Education

- M.S. in Applied Mathematics (Machine Learning); Northeastern University; Fall 2020 - Present; GPA: 3.87/4.0
- Bachelor of Technology (Hons.); Indian Institute of Technology - Kharagpur; Fall 2009 - Spring 2013.
- MOOC: Deep Learning; Mathematics for Data Science; Data Structures; Algorithms; Numerical Analysis.
- Coursework: Applied Linear Algebra; Probability; Applied Statistics; Machine Learning; Mathematical Modeling.

Employment

Senior Software Engineer   **Hitachi Vantara**   **Dec 2018 – Aug 2020**
- Built a deep learning model for semantic data type detection of fields in a resource in a Data Catalog.
- Automated resume matching process using an NLP model and decreased time spent by recruiting by approximately 80 %.
- Performed sentiment analysis on user ratings for organizations and developed a smart scoring algorithm for work happiness.
- Designed an efficient user visit logging system to calculate the user retention rate of a data catalog system.

Software Engineer – II   **Oracle India Pvt. Ltd.**   **Aug 2015 – Nov 2018**
- New features implementation and functionality enhancement in the Agile environment using TDD approach.
- Optimized duplicate row detection algorithm using probabilistic approach; reduced time complexity from $O(n^2)$ to $O(n)$.
- Developed RESTful web service for bulk-uploading data using Angular, Java, Spring, Hibernate, Oracle, Docker.
- Integrated the charting framework ngx-charts into the application and designed multiple UI components.
- Developed an end-to-end (UML Modelling + Backend + Frontend) Bell Notification Feature.

Software Engineer – R & D   **Altair Engineering Pvt. Ltd.**   **May 2013 – Aug 2015**
- Developed a GUI Automation Software by cloning Sikuli. Implemented standard image processing algorithms including Laplace Edge Detection, Pyramid Template Matching, Alpha blending using OpenCV.
- Adapted Tesseract OCR's code, to increase accuracy in text-recognition for screen fonts from 50 % to 95 %.

Projects

- **Transfer Learning with MobileNet** Used pre-trained weights of MobileNetV2 on ImageNet dataset. Modified the network architecture by deleting the top layer and adding a new classification layer. Performed training only on the new layer in order to create a binary Alpaca classifier to increase accuracy from 0 % to 99 %.
- **FaceNet - Face Recognition** Encoded face image into 128-dimension feature vector (one-shot learning) using FaceNet. Implemented Triplet Loss function to compare Anchor, Positive, and Negative images in training data. Performed face verification and face recognition using the above encodings.
- **Debiasing Word Vectors** Used 50-dimensional GloVe vectors to represent words. Performed Word Analogy task. Implemented equalization algorithm presented in Boliukbasi et al., 2016 to remove gender bias.
- **Neural Machine Translation** Implemented NMT model to translate human-readable dates into machine readable dates using a Bidirectional LSTM and Attention Mechanism.
- **Matrix Factorization for User Rating Predictions** Derived update rules and implemented Weighted Alternating Least Squares for predicting missing user ratings of MovieLens data. Evaluated the algorithm using MSE and found that it is 62 % better than baseline model.
- **Data Modeling using Markov Chain** Performed Time Series Analysis of average runs of opening batters in baseball from 1871 – 2015 with a Markov Chain. Calculated autocorrelation between original time series and a simulated time series. Performed GoF test at 5 % significance level to determine valid states of Markov Chain in a two-step transition matrix.

Languages and Technologies

- Python; Java; R; C++; C; SQL; MATLAB; HTML; CSS; TypeScript; XML; JSON; Visual Basic
- tensorflow; PyTorch; scikit-learn; NumPy; SymPy; pandas; matplotlib; Spark; OpenCV; Angular; Spring; JUnit; Mockito
- Git; Jupyter Notebook; Linux; IntelliJ IDEA; PyCharm; Docker; Excel