2595 Washington St
Boston MA - 02119
Phone No: +1-617-818-4646

SAI NIKHIL THIRANDAS

saint.math.1729@gmail.com
Portfolio | LinkedIn | Coursera
GitHub | HackerRank | Brilliant

A mathematician and an experienced Software Engineer, who has passion for innovation and loves solving complex challenges. I am interested in applications of Machine Learning/Deep Learning in fields of Computer Vision/NLP/Recommendation Systems.

EDUCATION

- M.S. in Applied Mathematics (Machine Learning); Northeastern University; Fall 2020 – Present; GPA: **3.91/4.0**
- Indian Institute of Technology, Kharagpur – B.Tech. (Hons.) in Engineering; Fall 2009 – Spring 2013.
- MOOC: MLOps, Deep Learning, Mathematics for Data Science, Data Structures, Algorithms, Object Oriented Design.
- Coursework: Machine Learning, Computer Vision, Applied Statistics, Linear Algebra, Probability, Mathematical Modeling.

EMPLOYMENT

Senior Software Engineer – ML | **Waterline Data Science** | **Dec 2018 – Aug 2020**

- Built a first ever unstructured Data Processor to extract text from images in Lumada Data Catalog (LDC). Collected training data using feedback forms and removed data distribution skew to improve OCR accuracy by 10 %; acquired at least 2 new clients.
- Developed a customer service AI chatbot using Elasticsearch and NLP to resolve user queries by redirecting to FAQs. Reduced number of tickets logged by 60 % and improved retention rate of people using LDC by 50 %.
- Implemented an asynchronous Spark job that helps to sync new/purge ghost content metadata in LDC.

Software Engineer 2 | **Oracle** | **Aug 2015 – Nov 2018**

- Developed RESTful web services for File-Based Data Import (FBDI Oracle) using Java, Spring, Angular, Oracle DB, Docker.
- Optimized duplicate row detection algorithm using probabilistic approach; reduced time complexity from $O(n^2)$ to $O(n)$.
- Designed a mobile application to scan OMR sheets of candidates during hiring; reduced time spent in recruitment by 80 %.
- Expertise in Oracle Business Intelligence Enterprise Edition (OBIEE), BI Publisher (XML Publisher), Accessibility Evaluation.

Software Engineer – R & D | **Altair Engineering** | **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, SIFT descriptor.
- Adapted Tesseract OCR's code, to increase accuracy in text-recognition for screen fonts from 50 % to 95 %.

PROJECTS

- Brain CT Hemorrhage Classification & Segmentation Performed binary classification using Xception Net and transfer learning to classify brain CT scan slices achieved an F-Score of 0.76. Used SMOTE to account for class imbalance and improve F-score to 0.82. Applied Bayesian Hyperparameter Optimization to reduce training time by 70 %. Performed semantic segmentation using U-Net and achieved an IoU of 0.66. Leveraged multiple shades of CT scans and 3D convolutions to improve IoU to 0.71.
- Camera Calibration using RANSAC Estimated camera projection matrix (to map 3D world coordinates to 2D image coordinates) and fundamental matrix (to relate points in one scene to epipolar lines in another scene) using RANSAC algorithm. Evaluated on Mt. Rushmore, Notre Dame, Gaudi pairs and achieved accuracies 97.1 %, 93.34 %, 81 % respectively.
- Auto Colorization of Grayscale Images Implemented Zhang et al., 2016 paper for automatic colorization of grayscale images using CNN and Deep Learning techniques. Modified the complexity of CNN architecture to achieve similar colorizations but with 80 % less training time. Achieved 77 % accuracy using a nearest neighbor based approximate image similarity measure.
- Image classifier for the SVHN dataset Built a CNN classifier model with 3 convolutional layers and 2 fully connected layers for digit recognition on street view images. Applied MaxPooling, BatchNormalization, Dropout and Early Stopping callback techniques to increase the validation accuracy from 55 % (baseline MLP) to 89.55 % (final).
- Matrix Factorization for User Rating Predictions Derived update rules and implemented Weighted Alternating Least Squares for predicting missing user ratings of MovieLens data. Improved MSE by 62 % compared to baseline (mean predicting) model.
- Debiasing Word Vectors Used 50-dimensional GloVe vectors to represent words. Performed Word Analogy task and implemented equalization algorithm presented in Boliukbasi et al., 2016 to remove gender bias.
- Data Modeling using Markov Chain Performed Time Series Analysis of average runs of opening batters in baseball from 1871 – 2015 with a Markov Chain. Performed autocorrelation and GoF test at 5 % significance level to determine valid states of chain.
- Northeastern News Updater Developed a Google Chrome extension to get instant notification updates from NEWS @ Northeastern portal using JavaScript, AJAX, HTML, and CSS. Was awarded a merit scholarship of $ 25,000.

TECHNICAL SKILLS

- Python, Java, R, C/C++, MATLAB, Mathematica, SQL, PHP, Perl, HTML, CSS, TypeScript, XML, JSON, Visual Basic.
- PyTorch, TensorFlow, OpenCV, NumPy, pandas, Matplotlib, scikit-learn, SymPy, Spark, Hadoop, Kafka, Hive, Zookeeper.
- Git, Jupyter Notebook, Linux, Docker, PyCharm, IntelliJ IDEA, AWS (SageMaker), GCP, Elasticsearch, Angular, Spring, Junit.
- Regression, Classification, Ranking, Recommendation Systems, Clustering, Dimensionality Reduction, Bagging, Boosting, Feature Engineering, Neural Networks, Deep Learning, Computer Vision, Natural Language Processing, Optical Character Recognition.