

# ANKIT SINHA

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## EDUCATION

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**Master of Science**, Business Analytics

University of Illinois at Chicago

Aug 2019 - Present

GPA: 3.70

**Bachelor of Engineering**, Computer Engineering

University of Mumbai

Aug 2013 - May 2017

## EXPERIENCE

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**Graduate Assistant (Data Science & Analytics)**, ClarisHealth

Sep 2020 - Present

- Developed a fraud detection model using TensorFlow, scikit-learn and SQL, on approximately 1.2 million observations, for health insurance claims that incorporates longitudinal scoring using LSTM autoencoder, and cross-sectional scoring using PCA and RIDIT transform for anomaly detection on a sliding window of 3 months
- Developed features using medical claims data for peer-to-peer analysis of providers categorized by their specialties
- Developed a classification model based on the transition matrix of the temporal graph data structure of medical procedures of various patients to determine the suspiciousness of a sequence of transition of nodes across the graph

**Summer Research Intern**, University of Illinois at Chicago

Jul 2020 - Aug 2020

- Researched on community detection algorithms for directed graphs using networkx and igraph for capturing temporal relations between medical procedures to develop a probabilistic model to identify episodes of symptoms for an individual
- Compared different scoring methods to determine the best metrics for evaluation of communities in a directed network using Pythons cdlib (a niche package for community detection), and scikit-learn

**Assistant Systems Engineer / Software Engineer**, Tata Consultancy Services

Jul 2017 - May 2019

- Developed 100+ stored procedures and triggers using T-SQL for manipulation, aggregation, and analysis of clients HRMS data from across 20 different countries, thereby increasing efficiency of data retrieval and querying by 30%
- Developed 200+ web forms using ASP.NET, C#, HTML, CSS, and JavaScript for data collection and analysis of information of 50,000+ users of clients HRMS portal, thereby improving stakeholder/employee engagement by 150%
- Collaborated with team of developers, business analysts, stakeholders, and technical support from offices across the globe to determine optimal specifications and solutions as per the business requirements

## PROJECTS

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**Sentiment Analysis of Hotel Reviews using Recurrent Neural Networks (RNN)**

- Implemented and tuned 3 variants of RNN - namely, vanilla RNN, GRU, LSTM, and attention models for sentiment analysis of 515,000+ reviews of 1,400+ hotels across Europe, and 100-dimensional GloVe representation for embedding
- Models with attention work best with an accuracy of 94% for additive attention and 96% for multiplicative attention, thereby increasing accuracy by 66.67% as compared to models without attention

**Target Marketing for Paralyzed Veterans of America**

- Developed two different models using glmnet and gbm for calculating the likelihood of response of a user and estimating their respective donation amount from a highly imbalanced dataset with 487 variables and over 95,000 observations
- Algorithms like Random Forest, LASSO regression, and Ridge regression were used on an under sampled training set of 50/50 proportion and their scores were calibrated to account for different baseline rates of the minority class
- Principal Component Analysis was also performed to reduce the number of variables to 80 principal components

**Human Activity Recognition**

- Developed and compared performance of Decision Trees, SVM, and K-NN algorithms for a multi-class classification on a dataset consisting of 561 attributes and 3,500+ observations
- Used PCA to reduce the the number of attributes to 17 principal components and compared model performance using classification accuracy, with SVM achieving the highest accuracy of 91.97%

## LEADERSHIP & HONORS

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- Received “The Innovative Mind” award by the client for leveraging technology to provide unique solutions, and better service
- Treasurer and Publicity Co-head for Computer Society of India, University of Mumbai student chapter
- Member of Illinois Technology Association, Operations Management Group, and Enactus UIC chapter

## SKILLS

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**Programming Languages:** Python, R, SQL, C#, Java, JavaScript

**ML Packages:** PyTorch, TensorFlow, scikit-learn, pandas, numpy, PySpark, tidyverse, glmnet, rpart, gbm, recipes

**Coursework:** Deep Learning, Network Analysis, Big Data Analytics, Text Analytics, Statistical Analysis & Modelling, Data Mining, Analysis of Algorithms, Data Structures, Object-oriented Programming, Database Management Systems

**Data Visualization:** Tableau, Power BI, matplotlib, ggplot2, seaborn