Manish SIHAG

Data Scientist | Natural Language Processing | AI in Drug Discovery

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🎓 EDUCATION

Indian Institute of Technology, Bombay   JULY'14 – JULY'18
Bachelor of Technology in Chemical Engineering

💼 PROFESSIONAL EXPERIENCE

Data Scientist, Aganitha Cognitive Solutions, Hyderabad   SEP'18 - CURRENT

Jul'20 - Apr'21 | **Disease Hub and Research Browser**
☑ *COVID Research Browser*   ☑ *Rare Disease Research Browser*   ☑ *Cancer Research Browser*
Developing a near real-time knowledge graph to collate and structure the information about diseases like COVID-19. Also, developing a research browser app that can fetch latest publications related to any topic
> Wrote ETL scripts for fetching financial data for any pharma company
> Developed a master data management pipeline for disambiguating organization names, author names and their affiliations
> Setup an ETL pipeline to fetch, process, and store research papers related to any disease
> Designed a graph-based database schema for storing data in neo4j
> Built a ReactJS based website to efficiently search millions of research papers in real-time

Python | Neo4j | GraphQL | ReactJS | JavaScript | HTML | CSS | Docker

Mar'19 - Dec'19 | **Suzuki Reaction Yield Prediction**
Given a chemical reaction, predicting the amount of products that will form
> Developed python modules for featurizing chemical reactions and molecules
> Setup an ETL pipeline for performing quantum computation for chemical molecule descriptors
> Developed a jupyter notebook based web app to interactively train new models and make predictions
> Helped client in 30% reduction of their lab expenditure by identifying low yielding reactions
> A research paper for joint publication is underway in collaboration with a $B Pharma company

Python | Postgres | Tensorflow | Docker | RdKit | GraphCNN | Airflow

Jan'19 - Mar'19 | **Pharmacokinetic Properties Prediction**
Build a POC for predicting pharmacokinetic properties like Bioavailability for drug-like molecules
> Learned how a drug process in a body and different factors it depends on
> Researched and analyzed different datasets available openly and replicated state of the art solutions as baseline models
> Trained graph-based deep learning models to identify drugs with higher oral Bioavailability
> Achieved an overall RMSE of 0.18 and R^2 value of 0.58 which was a 3% improvement over then State-of-the-art solution

Python | GraphCNN | Tensorflow | RdKit | Docker

Sep'18 - Dec'18 | **Email Request Analysis**
Classifying customer emails into 70+ categories to save resources needed for manual ticket generation
> Developed a python package for converting Microsoft Outlook's PST files to a dataframe
> Wrote a Regex based Python module to identify time and dates from a free-text email
> Implemented a pipeline to generate synthetic text representative of the underrepresented classes
> Trained various NLP models like RNNs and Self-Attention networks to classify incoming emails
> Improved customer experience by auto-generating ticket numbers for automated tasks and reduced the waiting time from 2 days to 5 minutes

Python | Postgres | NLP | Tensorflow | Docker

Machine Learning Intern, Eli Research India, Faridabad MAY'17 – JULY'17

May'17 – July'17 | QA Chatbot
Developing a QA chatbot to answer common and repetitive queries by customers
> Carried experiments for full sentence generation using RNNs and GRUs given initial words
> Developed deep learning models to classify customer queries into different categories
> Helped the company in reducing the number of customer calls by 10% by setting up a QA chatbot

Python   NLP   Tensorflow   Postgres

☰ TECHNICAL SKILLS

Programming	**Python**, **SQL**, GraphQL, HTML, Javascript, CSS, Bash
Databases	**Postgres**, **Neo4j**
Libraries	**Tensorflow**, RdKit, ReactJS, Keras, Scikit-learn, pandas, numpy
Others	**Docker**, Linux, Git
Familiar with	R, Java, C, C++, Octave, MATLAB

🎓 RELEVANT COURSEWORK

Aug'16 – Sep'16	R Programming, Johns Hopkins University, Coursera ☑ Certificate
Dec'16 – Jan'17	Algorithms, University of California, San Diego, Coursera ☑ Certificate
Jan'17 – Feb'17	The Data Analytics Edge, MITx Courseware, edX
Mar'17 – Jun'17	Machine Learning, Stanford University, Coursera
May'17 – Jun'17	Natural Language Processing, Stanford University, YouTube
Aug'17 – Feb'18	Deep Learning Specialization, deeplearning.ai, Coursera ☑ Certificate ☑ Certificate ☑ Certificate