Sandesh Patnurkar

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EDUCATION

University at Buffalo, State University of New York.
Master of Science, Computer Science and Engineering **Dec 2018**
Courses: Analysis of Algorithms, Data Mining and Bioinformatics, Data Intensive Computing, Computer Security, Computer Vision and Image Processing, Database Systems

Government College of Engineering Aurangabad, INDIA
Bachelor of Engineering, Information Technology **June 2017**
Courses: Data Structures, Object-Oriented Programming, Programming in Java

COMPUTER SKILLS

Programming: Java, Python, HTML, CSS, SQL, JavaScript, MATLAB, R, VHDL, PHP, MongoDB
Frameworks: Bootstrap, Hadoop, Angular, jQuery, WordPress
Operating Systems: Linux, Windows, OSX
Tools and Services: LaTex, Git, Docker

ACADEMIC PROJECTS

- *'Relational Query Engine'* **Feb - May 2018**
  - Built a Relational Query Engine in Java using JSQLParser to evaluate SQL queries
  - Implemented custom optimizations such as query rewriting by dynamically changing the structure of the relational tree during runtime and implement different join algorithms to improve the throughput
- *'Implementation of PCA and Apriori Algorithms'* **Sep - Dec 2018**
  - Reduced higher dimensional data to 2 dimensions by implementing PCA algorithm from scratch
  - Compared PCA algorithm with SVD and t-SNE algorithms by plotting the 2 dimensional data achieved by execution of respective algorithms
  - Performed association rule mining using the Apriori Algorithm to generate rules for a gene dataset
- *'Data Aggregation, Big Data Analysis and Visualization'* **Feb - May 2018**
  - Used the twitter API to extract tweets on a topic of interest using R
  - Used Python to extract NY times articles using NY times API and BeautifulSoup library
  - Processed the tweets and articles using Python then ran them through Hadoop's MapReduce framework
  - Inspected most frequently occurring words data and visualized them in a word-cloud that was developed using D3.js
- *'Classification algorithms'* **Sep - Dec 2018**
  - Classified data (both discrete and continuous) using nearest neighbor and decision tree algorithms that were implemented in Python from scratch with the help of NumPy and Pandas library
  - Performed 10-fold cross validation to evaluate performance metrics of both algorithms
- *'Data Collection and Exploratory Data Analysis'* **Feb - May 2018**
  - Used R to extract tweets on a topic of interest with the help of Twitter API
  - Extracted the geolocation from the metadata associated with the tweets. In cases where the tweets were not tagged with a geolocation, the users were looked up and the location mentioned in their profile was used
  - Extracted location data and plotted a heat map using the state-specific twitter data using Google Maps API
- *'To-Do App – MEAN'* **May – June 2018**
  - Built a To-Do app using NodeJS as backend and AngularJS as frontend which was connected using ExpressJS. Used MongoDB as the database.
  - Improved the front end design using Google Material Design Lite. Designed it as a Student- Teacher application wherein Students could only read the To-Dos and Teachers could add, delete and update the to dos
- *'Stitching pairs of images'* **Sep - Dec 2017**
  - Implemented a robust homography and fundamental matrix estimation in MATLAB to register pairs of images separated either by a 2D or a 3D projective transformation and stitch them together

EXTRA-CURRICULAR

- *'Member - Student-Alumni Team': - Alumni Association of GECA* **July 2015 - May 2016**
  - Designed and maintained organization website. Improved efficiency of grunt work by 60% using AutoHotkey.
  - Interacted with team members to discuss new designs for website and contributed to maintaining, improving access and storage of the alumni database

LANGUAGE SKILLS

English, Hindi, Marathi, Japanese (N5 level), German (A1 level)