

# AKSHAY KULKARNI

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[akshay-a-kulkarni.github.io](https://github.com/Akshay-A-Kulkarni) | [github.com/Akshay-A-Kulkarni](https://github.com/Akshay-A-Kulkarni)

## EDUCATION

### NORTHEASTERN UNIVERSITY

Khoury College of Computer and Information Sciences

Candidate for Master of Science [M.S.] in Data Science (GPA : 3.713/4.0)

Courses : Algorithms, Data Management & Processing, Database Management Systems, Information Retrieval, Large Scale Parallel Data Processing (MR & Spark), Supervised Machine Learning

Boston, MA.

Sep 2018 - Present

### BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI – DUBAI CAMPUS

B.E. [Hons] in Electronics and Communications Engineering

Related Courses : Digital Image Processing, Communication Systems

Dubai, U.A.E.

Aug 2012 - Jul 2016

## SKILLS

**Languages :** Python, R, SQL, Java, Scala, Octave, MATLAB, HTML, CSS

**Tools & Platforms :** IDEA & PyCharm, RStudio, Anaconda, Jupyter, Tableau, Git, MySQL, Docker, AWS, GCP

**Libraries & Frameworks:** Scikit-Learn, NumPy, Pandas, TensorFlow, Keras, SQLA, Django, Flask, DASH, RShiny, Lucene, Spark, MapReduce, FastAI

## EXPERIENCE

### NORTHEASTERN UNIVERSITY - Graduate Teaching Assistant

-CS-3200 [Database Design]

-DS-4100 [Data Collection, Integration and Analysis]

- Designing coursework and assignments, evaluating submissions and student projects.
- Guiding and teaching students in-class / during office hours to help them master & reinforce learning concepts such as tidying, storing, analysing data as well as designing databases in MySQL and employing ML techniques in R.

Boston, MA.

Sep 2019 – Dec 2019

Jan 2019 – May 2019

### PREDIKLY - Junior Analyst

- Worked on generating statistics, visualizations and dashboards for projects for CA/CPA/CS clients to manage their practice online with BI Tools like Tableau & assisted in building predictive analytics solutions.

Pune, India.

Aug 2017 - May 2018

### ZIO TECHNOLOGIES L.L.C - Sales and Statistics Intern

- Acquisitioned and analysed product statistics/data for projects and request of tender submissions, and assisted on Systems and AV integration for large scale media projects.

Dubai, U.A.E.

Aug 2015 – Jan 2016

## PROJECTS

### Distributed Matrix Factorization for Collaborative Filtering/Recommender Systems in Spark

Oct 2019 – Dec 2019

- Developed a scalable parallelized algorithm using Alternating Least Squares to decompose/encode a large, sparse ratings matrix R into lower latent k-dimensional user factor matrix and an item factor matrix in order to optimize storing and computing recommendations of items to users in explicit collaborative filtering.

### Chest X-ray Diagnosis using Convolutional Neural Networks

Oct 2019 – Dec 2019

- Performed classification of 14 different disease labels from the NIH Chest X-ray Dataset containing 112,120 patient records by training modified CNN architectures such as ResNet50 and InceptionV3 using Pytorch and Keras on deep learning cloud VMs.

### Decision Support Framework/Multi-Objective Optimization & Visualization Tool

Jun 2019 – Aug 2019

- Deployed a re-usable database-agnostic decision support tool with a React front-end and the core components developed purely in Python to enable a user to perform trade-off analysis.
- Implemented functionality to extract & display a manipulable decision table & calculate the Non-Dominated set of objectives to aid the user with identifying the best min/max multi-objective solution.
- Incorporated methods to plot a spatial interactive Pareto Frontier/Curve for the selected features or objectives

### Building a complete Search Engine/ Information Retrieval Model.

Mar 2019 – May 2019

- Implemented a retrieval model in Python and Apache Lucene, using several ranking algorithms such as BM25, QLM & Vector Space Model with pseudo-relevance feedback to rank parsed and cleaned documents
- Optimized the search engine by employing stopping, stemming and query expansion via Word2Vec-trained embeddings & generating summarization with Luhn's algorithm

### Analytical Occupation Classification on O\*NET Database using Gaussian Process Classifier

Mar 2019 – Apr 2019

- Analysed performance of Gaussian Process Classifier on the O\*NET database (from U.S. Department of Labor) with other models like LDA, QDA, RandomForest to determine the analytical nature of an occupation

### WebCrawler with PageRank in Python

Dec 2018 – Apr 2019

- Built a comprehensive web-crawler in Python performing BFS/DFS to generate a web graph & retrieve data from a specified seed page for cleaning, tokenization in order to perform analysis and generate corpus statistics and implemented Google's PageRank algorithm from scratch to rank the crawled pages.