

K M Mitravinda

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EDUCATION

University of Illinois at Chicago (UIC)
Master of Science in Computer Science

Aug 2023 - May 2025

PES University
Bachelor of Technology in Computer Science

Aug 2018 - May 2022

TECHNICAL SKILLS

- **Programming Languages:** C | C++ | Python
- **Front-end and Back-end technologies:** HTML | CSS | JavaScript | Bootstrap | React | Node.js | PHP
- **Scripting:** Shell Scripting
- **Database:** MySQL | MongoDB
- **Tools:** AWS | PySpark | Android Studio | Git | Electron.js | Scilab | Arduino IDE
- **Python Libraries:** Numpy | Matplotlib | Pandas | scikit-learn | scikit-image | Tensorflow | Plotly | OpenCV
- **Operating Systems:** RHEL 8.9, 9.0, 9.1, 9.2 | SLES 15.3, 15.4 | Windows | Ubuntu

EXPERIENCE

IBM, Bangalore, India | *System Performance Analyst*

Jul 2022 - Jul 2023

- Improved write performance of PostgreSQL's benchmark pgbench by **2.5x** on IBM Power Systems
- Optimized Linux performance CI test & analysis through **need based performance data collection logic** and **predictive model** trained on system parameters
- Brought **3.5x improvement** in performance CI test's runtime & **82% reduction** in workload **space consumption**
- Built a **data management & visualization tool** to manage & visualize the workload-performance data across different **Linux builds** & identify **regressions**

IBM, Bangalore, India | *Intern*

Jan 2022 - Jul 2022

- Analyzed performance of multiple **Linux benchmarks & cryptographic ciphers** across multiple **RHEL and SUSE** kernel releases on IBM Power systems
- Worked with **Hardware Management Console(HMC) & Virtual I/O servers(VIOS)** to test IBM Power systems' performance
- Worked on **CI pipeline** using **Jenkins** that automates workload-execution, obtaining performance output and **identifying regressions**

PES University, Bangalore, India | *Teaching Assistant (Blockchain & Statistics for Data Science)*

Aug 2021 - May 2022

Assisted **Prof. Shruti Jadon** in preparing **presentations & test questions** and **grading assignments** for the course **Blockchain - UE19CS335**

Assisted **Prof. Mamatha HR** in **preparing presentations** for the class according to the course syllabus of **Statistics for Data Science - UE19CS203**

PROJECTS

Data Analytics on Mental Health in Tech & Tech Employees

Jan 2022 - Nov 2022

- Predicted possibility of being diagnosed with a mental health issue using **Gradient Boost Classifier** with an accuracy of **93.939%**
- Clustered employees into 3 risk-clusters, high, medium and low using **Spectral Clustering** with a Calinski-Harabasz index of: **316.76**; Computed **risk-score**
- Analyzed the **impact of workplace factors**; Performed **multi-year study** on pandemic's impact & the **mental health scenario** in tech **pre & post-COVID-19**

Face Sketch-Photo Synthesis & Recognition

Jan 2021 - Dec 2021

- Built a framework to **convert face-photos to face-sketches** using **Two Scale Image Decomposition with Bilateral Filtering**
- Trained a 9 layered **Convolutional Neural Network**, post preprocessing, on the **celebA** database to **convert face-sketches to photos**
- Employed **Fisherface Linear Discriminant Analysis** to perform **facial recognition** of face-photos with an **accuracy of 91.875%**

YACS: Yet Another Centralized Scheduler

Nov 2020

- Simulated the working of a **distributed processing system** on big data by building a **centralized scheduler** based on the **master-slave model**
- Established **communication** between master and slaves via **socket programming** where the master **listens to requests, assigns and schedules tasks**
- Implemented and compared the performances of **Round Robin, Random and Least Load scheduling algorithms** that were executed by slaves

Mini C++ compiler

Jan 2021 - Apr 2021

- Designed a mini C++ compiler that **performs syntax analysis** to verify if the sequence of tokens in the input forms a valid C++ sentence
- Checks **input's semantic validity**, validates **type checking**, ensures that all **variables are declared before use**, catches **variable re-declarations**, catches **bracket mismatch** and correctly **records the scope of each variable** for the statements, **if, if-else, while & for constructs**
- Implemented the steps: (i) Symbol Table Creation (ii) Intermediate Code Generation (iii) Code Optimization (iv) Error Handling

Employee Attrition

Nov 2022 - Dec 2022

- Predicted employee's susceptibility to not remain in the company using **XGBoost Classifier** with an accuracy of **87.074%**
- Identified **attrition-cause** (most contributing factor) using **SHAP index**; created dataset with attrition-cause & corresponding prevention-recommendation
- Employed **user-based collaborative filtering** to get **top-5** most similar records with **attrition-prevention recommendations**

Page Rank Algorithm

Oct 2020

- Implemented Page Rank algorithm on a **web-graph dataset** using **Hadoop**
- Converted the input file to **adjacency list** using **map reduce** and stored it in the **HDFS**
- Implemented a **mapper and a reducer** to **calculate the pagerank** until convergence

Stock Market Trend Prediction

Apr 2020

- Predicted **stock market trend** using **Markov Chains** on the S&P market index data for a period of 1 year.
- Predicted trends for short term (1 year data), medium term (3 year data) and long term (5 year data) and compared the results.
- Obtained the **accuracy of 85.71%** for short-term, **78.57%** for medium-term and **57.14%** for long-term.

ilModella- Website

Aug - Nov 2019

- Designed a **fashion e-commerce website** with dynamic web pages and attractive display of outfits
- Imported **3d models** from 3.js library to **visualize the selected outfits** according to the customer's size through avatars

FitNess- Android App

Feb - Apr 2020

- Built a physical fitness and mental wellness aid Android application
- Implemented **Nutrition and Calorie Tracker and Recorder** using **Nutritionix** database containing food items & their nutritional information
- Incorporated **Step Counter** visual instructions for **workout regimes** and **yoga practices** for physical and mental well being
- Provided **soundtracks** to support **meditation**, inspirational video of the day & status with good messages or quotes to **instill positive thoughts**

ViSea

Aug - Nov 2019

- Built a **desktop application** to automatically **clean, preprocess and provide column-wise summary statistics** for a given dataset
- Incorporated **recommendation of top-10 graphs** for a selected column based on the **relevancy of the graph & correlation** with other column

Big Mart Data Analysis

Nov 2019

- Performed data analysis on Big Mart dataset; Combined test & train datasets to handle missing values & outliers & performed data cleaning
- Obtained **visualizations** to conduct **univariate, bivariate and trivariate analysis**
- Conducted **chi-squared tests** and **hypothesis testing** with 95% confidence interval

PAPER PRESENTATIONS & PUBLICATIONS

- Mitravinda, K. M., et al. "Face Sketch-Photo Synthesis and Recognition." *International Conference on Image Processing and Capsule Networks*. Cham: Springer International Publishing, 2022. [DOI](#); Presented at the [3rd International Conference on Image Processing and Capsule Networks](#)
- Mitravinda, K. M., Devika S. Nair, and Gowri Srinivasa. "Mental Health in Tech: Analysis of Workplace Risk Factors and Impact of COVID-19." *SN computer science* 4.2 (2023): 197. [DOI](#); Presented at the [3rd International Conference on Adaptive Computational Intelligence](#)
- Mitravinda, K. M., and Sakshi Shetty. "Employee Attrition: Prediction, Analysis Of Contributory Factors And Recommendations For Employee Retention." [2022 IEEE International Conference for Women in Innovation, Technology & Entrepreneurship \(ICWITE\)](#). IEEE, 2022. [DOI](#)
- Research paper '[Modernizing Performance CI](#)' presented at the **IBM India Systems Development Labs symposium 2022**

AWARDS & SCHOLARSHIPS

- **DAC Scholarship, PES University** (Aug - Dec 2019) (Jan - May 2020) (Aug - Dec 2021)
Distinction award for students with CGPA above a set threshold for a semester
- **Prof. MRD scholarship, PES University** (Jan - May 2020)
20% tuition fee waiver for the top 20% students in a semester

EXTRACURRICULAR ACTIVITIES

- **Abacus**: Won the **Third Runner-up award** at the '**SIP Karnataka State Level Abacus Competition**'
- **Student Coordinator**: Organized 'CodeWars' competition at the **National Level Science Fest**, The Amateur Scientist 2018, by PES University, Aug 2018
- **Student Volunteer**: Organized Incito'20, an **Ideathon** for B.Tech students by PES Innovation Lab held at PES University, Feb, 2020
- **Core Team Member**: Involved in **planning** and **organization** of HashCode'19, a 24-Hour **Hackathon** for B.Tech students conducted by PES Innovation Lab
- **Member of Student Organization 'Community of Data Science'**: Participated in technical discussions, workshops and projects hosted by the community

COMMUNITY SERVICE

Data Team, Project StepOne

Aug 2021 - Aug 2022

- **Volunteering** at StepOne, a national Covid telemedicine helpline which connects healthcare experts and covid patients for free
- Helping the data team in **processing the incoming cloud telephony data, analyzing it and preparing reports** on it

English Curriculum Writing, Team Everest

Jul 2022

Volunteered with Team Everest in **developing an English curriculum** to help college students from **low-income**, parentless & single-parent families

Career guide book, Team Goodera

Dec 2022

- Volunteered to work with Team Goodera in **designing career guide books** for people who are **intellectually challenged**
- Created a **digital aid** to assist the beneficiaries in **portfolio building, resume writing and exploring career options**