NIVEDHA BALAKRISHNAN
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EDUCATION

San Jose State University May 2023
Master of Science in Data Analytics (Awarded Academic Scholarship)

Linkoping University, Sweden May 2020
Master of Science Biomedical Engineering (Master Thesis in Data Analytics and Artificial Intelligence)

Anna University, India May 2016
Bachelor of Engineering Biomedical Engineering (Awarded Best Outgoing Student of the Year 2016)

Received **Patent from Intellectual Property India** for an innovative product *Nylon Fabricated Bone Immobilizer using Rapid Prototyping* in the field of orthopedics.

TECHNICAL SKILLS

Languages: Python, SQL, MongoDB, R, MATLAB, C#, HTML, CSS, JavaScript, React.
Visualization Tools: Matplotlib, Seaborn, Plotly, Tableau, Power BI, MS Excel.
Tools and Frameworks: Scikit-Learn, TensorFlow, Keras, Pandas, NumPy, NLTK, Flask.

WORK EXPERIENCE

San Jose State University | Graduate Research Assistant (Jan 2022 - Present)
Working on a research project to discover new antithrombotic drugs to treat thrombosis.

- Collected 109 positives from peer reviewed publications and 1065 negatives from protein databases.
- Extracted **572** features corresponding to peptides using **Biopython** module.
- Performed **Z-test**, generated **p-values** and conducted visualizations to identify significant features.
- Developed Two-staged ML pipeline with **classification** and **regression** models to identify and predict the anti-thrombin peptides and their corresponding inhibition constant value respectively.
- Tested the model with **10 million** peptides and identified **568** unique peptides with antithrombotic activity.
- Employed **clustering** algorithms, grouped peptides with similar characteristics.

Integrum AB, Sweden | Graduate Intern (May 2019 – Jan 2020)
Worked on an AI-based new therapeutic product that predicts the intended hand movements of amputees.

- Analysed and identified best features from EMG signals using **permutation feature importance** and **separability index** algorithms in **MATLAB** and increased the performance from **8%**.
- Collaborated with the team to implement these changes to the product design using **C#.**
- Investigated the presence of conflicting neighbors between several hand movements using **cluster analysis** and **visualization** techniques and helped to set up therapeutic procedures based on the results.

Cognizant Technology Solutions, India | Computer Programmer (Jun 2016 – Jun 2017)

- Developed and tested front-end components of the website using HTML, CSS and JavaScript while ensuring seamless integration with back-end systems.
- Ensuring cross-browser compatibility and responsive design for optimal user experience on desktop and mobile devices.

PROJECTS

Aging Clock: Prediction of Age using Biomarkers (GitHub)
Predicting Age using Biochemical Profiles and Identifying important features corresponding to aging.

- Collected **100k** samples of data with Biochemical profiles from NHANES website.
- Developed, trained, and improved the regression model by **10%** to predict biological age using Biomarkers.
- **Integrated** the trained regression model into a **website** by implementing it using **Flask** framework.

Swipe Right: A comparative analysis of popular dating apps (GitHub)
Analysing and comparing the performance of dating apps during pandemic period when it was needed the most.

- Scraped Google app reviews for four dating apps – Bumble, Hinge, Match and Tinder using **Beautiful Soup**.
- Employed visualization techniques to analyse and identify **changes in app ratings** during pandemic period.
- Conducted sentimental analysis on reviews using **Vader** sentiment, identified common problems and needs.

Driven by the data: Big Data Analytics of the preowned car market (GitHub)
Building data pipeline using AWS tools for effective retrieval and usage of the data.

- Developed data pipeline using **AWS S3 bucket**, **RDS**, **RedShift** to perform **ETL** operations for data preowned car dataset with **1 million** samples.
- Established a connection to **Tableau** and built dashboards to identify key features affecting the car prices.

VICE PRESIDENT of the Machine Learning Club at SJSU

Leading hands-on ML project sessions to guide students in building ML models from scratch using Keras, TensorFlow, Scikit-Learn etc. and providing insights on best practices and real-world problem-solving using practical datasets.