Md Rayed Bin Wahed

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Software engineer experienced in Machine Learning, Cloud Computing, and Web & Mobile application development. Leading a team of engineers to drive new business opportunities and improve the Quality of Life of our end customers.

EXPERIENCE

- **Therap (BD) Ltd.**   Dhaka, Bangladesh
  Team Lead, Machine Learning   *Jul 2019 - Present*

  Therap (BD) Ltd. is a wholly-owned subsidiary of **Therap Services LLC., USA**. Therap is a **HIPAA compliant**, web and mobile application suite providing comprehensive solutions to organizations supporting people with **Intellectual and Developmental Disabilities (IDD)**.

  - **Protected Health Information (PHI) in Video**:
    * Detect persons in video using the Detectron2 PyTorch object detection model.
    * Identify IDD individuals using the InsightFace Face Analysis project.
    * Dynamically blur individuals for whom the staff watching does not have access.
    * Initiate the adoption of HIPAA-secure, unobtrusive group home monitoring using CCTV cameras.
  - **Customer Engagement**:
    * Train a binary classification LSTM model in TensorFlow to predict the likelihood of customers leaving Therap.
    * Identify similarities and differences between customers by clustering them using the K-Means algorithm.
    * Implement a feature recommender system using the Matrix Factorization collaborative filtering technique.
    * Enable Marketing and Customer Support teams to engage with customers more effectively.
  - **Pulse Oximetry**:
    * Build a Progressive Web App in React, GraphQL, and AWS Amplify to track SpO2 and heart-rate readings.
    * Send real-time SMS and Email alert notifications using AWS Lambda, SNS and SES.
    * Significantly improve caregivers' ability to monitor IDD individuals for COVID-19.
  - **Sleep Analysis**:
    * Implement comprehensive sleep profiles of IDD individuals using sensor readings from IoT sleep mats.
    * Plot hypnograms, bed in/out statistics, heart and respiration rate diagrams in Plotly.
    * Inform caregivers of the quality of sleep of IDD individuals.

- **Therap (BD) Ltd.**   Dhaka, Bangladesh
  Full Stack Software Engineer, System Architecture   *Oct 2016 - Dec 2019*
  - **Model**:
    * Modelled complex Entity-Relationships in Oracle RDBMS.
    * Wrote highly optimized queries in PL/SQL to strore, retrieve, and process large amounts of relational data.
  - **View**:
    * Generated dynamic HTML content using the JSP template engine.
    * Implemented event-driven, asynchronous frontend components and plugins using JavaScript and jQuery.
    * Utilized the Bootstrap CSS library to style the application UI.
  - **Controller**:
    * Implemented core application features and modules in Java, Spring MVC and Hibernate ORM.
    * Exposed REST endpoints for core system resources and functions.
    * Consumed and built services on top of third-party REST APIs.
    * Wrote unit and integration tests.

- **We Are X**   Dhaka, Bangladesh
  Machine Learning Consultant   *Jan 2019 - Mar 2019*

  Online social-media customer service platform for large enterprises.

  - **Text Classification**:
    * Implemented a multi-class text classification model to classify customer queries written in Bengali and English.
    * Improved customer service representative productivity by 3x.

Education

- **BRAC University** — Dhaka, Bangladesh
  Bachelor of Science in Computer Science — *Jan 2012 - Aug 2016*
  - **CGPA**: Final Year: 3.89/4.00; Overall: 3.75/4.00.
  - **High Distinction**: Graduated with High Distinction.
  - **Merit-Based Scholarship**: Awarded Merit-Based Scholarship valued at CAD 12,000.
  - **Teaching Assistant**: Worked part-time as a TA for Data Structures and Discrete Mathematics.

- **Machine Learning Nanodegree** — Dhaka, Bangladesh
  Udacity — *Nov 2019 - Jan 2020*
  - **Project**:
    * Trained a Deep Learning model to detect Activities of Daily Living using IMU sensor data from smartwatches.
    * Obtained an accuracy of 90%.

Awards and Honours

- **President's Volunteer Service Award** — Washington D.C., USA
  President's Council on Service and Civic Participation — *Aug 2008*
  - **Recognition**: Awarded President's Volunteer Service Award from the President's Council on Service and Civic Participation for outstanding service to community and country.

- **YES Leadership Summit** — Colorado, USA
  Sister Cities International — *Mar 2008*
  - **Recognition**: Selected to complete this summit consisting of challenging and interactive activities designed to improve leadership skills. Applied those skills in a variety of physically and emotionally demanding situations.

- **International School Cricket Premier League** — Lucknow, India
  International Cricket Council (ICC) — *Jan 2011*
  - **Recognition**: Represented Bangladesh as a cricketer in the first ever International School Cricket Premier League organized by City Montessori School & Degree College and sponsored by the ICC.

References

- **David L. Turock, Ph.D.**
  Director, Biometric Research Laboratory, Therap Services LLC.
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