Sougato Bagchi

Location: Buffalo, NY, USA

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Data and ML Engineer

Worked as a Data Engineering Intern processing large patient datasets to identify relevant features for an ML model and analyzed the relations among these features using Associative Rule Mining. Also worked as a Research Assistant analyzing customer purchasing patterns as well as RFM (recency, frequency, monetary), predicting product suggestions.

Built an Intelligent Robot incorporating autonomous navigation, audio-visual recognition and natural language processing.

Some of my work is published in IEEE and Springer Journals

Technical Skills

Languages	:	Python, C++, MATLAB, SQL
Libraries	:	PyTorch, Scikit-Learn
ML Algorithms	:	Linear Regression, Decision Tree, Random Forest, K-Nearest
SDLC Tools	:	Jupyter, VSCode, Eclipse, GitHub
OS	:	Linux, Windows
Robot HW	:	Camera, IMU, LiDAR, robo-motion
Frameworks	:	SalesForce CRM, Robot Operating System (ROS)

Experience

Research Assistant — Feb 2022 – Present
University at Buffalo — *Buffalo, NY, USA*

- Customer Segmentation and Product Suggestion by analyzing their purchase patterns and Associative Rule Mining, as well as RFM (recency, frequency, monetary) analysis
- Image Enhancement of noisy low-light images using Generative Adversarial Network (GAN) trained on reflectance and illumination patterns
- Intelligent Robot: Augmented a simple order-driven robot with sensory capabilities and reactions, such as Feedback Learning, Language Processing and Audio-Visual Recognition

Machine Learning Engineer(Summer Intern) — June 2022 – Aug 2022
COZEVA - Applied Research Works, Inc — *Fremont, CA, USA*

- Data Engineering to process large Data Sets (patient medical data)
- Identification of Relevant Features for Machine Learning
- Neural Network Model to predict medical care gaps
- Associative Rule Mining to identify correlation between social demographics and care gaps

Salesforce Developer — May 2019 – Nov 2020
Tata Consultancy Services — *Kolkata, India*

- Client Interfacing
- Requirements Analysis
- Data Visualization and Analysis

Education

University at Buffalo — Buffalo, New York, USA
Master of Science in Computer Science; GPA 3.5/4.0 — *Aug 2021 – Aug 2023*

University of Engineering and Management — Kolkata, India
Bachelor of Technology in Computer Science; GPA 3.7/4.0 — *Aug 2015 – April 2019*

Publications (IEEE and Springer Journals, White Papers)

Noisy Low Light Image Enhancement *Python, PyTorch, Linux* To be published

* Create synthetic "noisy low light"-"ground truth" RAW image pairs
* Generative Adversarial Network(GAN) trained on reflectance & illumination parameters of the image pairs
* Network better de-noised and fixed the exposure for low-light noisy images

On Deep Learning for Dorsal Hand Vein Recognition *Python, PyTorch* IEEE, Nov 2022

* Data Collection for Dorsal Hand images
* Neural Networks trained on vein patterns, for using it as a biometric

Hepatocellular Carcinoma Survival Prediction Using Deep Neural Network *Python, TensorFlow* Springer, Oct 2018

* Prediction of survivability of patients with HCC using clinical data
* Neural Network as well as models like K-nearest Neighbor used for this data

Quantitative Rainfall Prediction: Deep Neural Network-Based Approach *Python, TensorFlow* Springer, Oct 2018

* Predicting Rainfall based on Humidity, Temperature and other factors
* Neural Network as well as Regression models used for this data

Characterization of SLAM systems *C++, Python, ROS, Linux* White Paper

* Evaluation of **Kalman-Filter** based SLAM systems
* Performance evaluation in terms of Absolute Trajectory Error(ATE)

Certifications

- Financial Markets (with Honors) - Coursera
- Computer Vision Basics - Coursera