

SYED ZAIN ALI BAQUAR

Data Scientist / Machine Learning Engineer

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EDUCATION

B.S in Cognitive Science specializing in Machine Learning & Neural Computation

UCSD (University of California, San Diego)

📅 2015 - 2019

EXPERIENCE

Machine Learning/Software Engineer

Visionet Systems Inc

📅 2020 - present

📍 Cranbury, NJ

- Executed scale-able end-to-end Customer Segmentation allowing retail clients to target customer groups with different marketing strategies.
- Implemented algorithms to predict customer churn and life-time value, allowing our business clients to gain actionable intelligence on how to retain customers or adjust retention strategies.
- Released a time series forecast model to forecast sales, demand and inventory for future periods, liberating around 400k USD for more efficient budgets in managing inventory and promotional campaigns.
- Performed year-over-year enterprise analysis, finding key drivers for sales growth, conversion rate and other key performance indicators.
- Created pipelines to solve policy allocation for life insurance by deciding which customers are susceptible to a cross or up sell insurance policy.
- Developed optimized order allocation for transport logistics, determining which shipments to accept and which to reject based on the objective to maximise miles per delivery.
- Collaborated with data engineers, and database architects to create and manipulate large databases to import for data exploration, visualization, analysis, interpretation, and monitoring.

Research Assistant

Swartz Center for Computational Neuroscience (UCSD)

📅 2018 - 2019

📍 San Diego, CA

- Collaborated with a team supervised by Dr. Gedeon Deak and Dr. Tzyy-Ping Jung at SCCN to conduct an experiment to observe brain dynamics during social decision making using EEG and Pupil Labs eye tracking software.
- Programmed the game used in the experiment in Python as well as performed the necessary data analysis by evaluating EEG and eye tracker results in MATLAB in an attempt to isolate the P300 signal seen upon not seeing an expected outcome.
- Research published by the Kavli Institute of Brain & Mind.

SKILLS AND TOOLS

- Python, MATLAB, SQL, Java, PyTorch, TensorFlow/Keras, OpenCV, SQL, scikit-learn, Visual Studio, Anaconda, SQL Server Management Studio, PowerBI, Azure

PROJECTS

Character-level Brain Computer Interface 2022 (Python)

- Actively building a brain computer interface (BCI) to read EMG readings from the larynx and other facial muscles to predict the character or word being sub vocalized, with the over-all objective to think of a word or character and have it appear in a text field.
- Collected data from myself by attaching 4 gold cup electrodes to my face and larynx and streaming the data using a Ganglion board and PyLSL.
- Labelled the data using the 26 letters of the English alphabet, as well as "period" and "space".
- Trained a sequence-to-sequence transformer and an RNN to classify 4 channel sequences into these 28 classes.
- Constructing a wearable headgear housing these electrodes, to allow for rapid re-usability and to collect data from individuals other than myself.

Dash Cam Speed Detector

2020-2021 (Python)

- Developed a deep convolutional neural network (CNN) to predict vehicle speed from dash cam footage.
- Trained the CNN on frames of .MP4 sample footage.
- Implemented dense optical flow on each frame to capture pixel color differences between frames of the video as features for the model.
- Succeeded in having the model identify lane lines and other filter out other objects in the vicinity.
- Achieved an error as low as 2 mph.

Medical Machine Learning

2019 (Python)

- Predicted the occurrence of cardiovascular disease in patients to an accuracy of 75% and Type 1 error of 16% using principal component analysis and support vector machines.
- Detected early onset Alzheimers disease to an impressive accuracy 96% with and false positive and negative rates at under 0.05% using a deep neural network.
- Implemented a classifier to use radius, texture, compactness and concavity to detect breast cancer. The model achieved an accuracy of 95% with false positive and negative rates under 0.05%

PUBLICATIONS

Decision-Making in a Social Multi-Armed Bandit Task: Behavior, Electrophysiology and Pupillometry