

# Kay Ayala

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## Education

Southern Methodist University <b>MS. in Data Science</b>	Nov 2018 – Dec 2020
University of California, Santa Cruz Extension Continuing education – programming	Dec 2017 – Apr 2018
University of California, San Diego <b>BS. Cognitive Science</b> with emphasis in Computation ( <b>Machine Learning</b> )	Sept 2014 – Jun 2017

## Skills

Programming Tools: **Python, R, SQL, Tensorflow, Keras, Docker, AWS, NumPy, SciKit-Learn, SciPy, pandas, Matplotlib, Git**

DS and ML: **Neural Networks** and **Deep Learning** NN DL, Machine Learning models ML, **GLM**, Probability, **Statistics, Experimental Design, AB Testing**, Natural Language Processing **NLP, Time Series Analysis, Data Visualization**

## Projects

### Optical Character Recognition (OCR) for Arabic handwriting

- Classified Arabic handwritten character images with 93% accuracy
- Utilized a **convolutional neural network** using **Tensorflow**
- Implemented two convolutional layers each with their own pooling layer
- Utilized **python** and Jupyter Notebooks on **Amazon Web Services (AWS) EC2**

### Project Nyx

- Total Data Science project consisted of 23 people over 48 hours
- Helped develop **business objectives** and **data visualization**
- Assisted in coordination between management, reporting, and modeling teams

### Time Series Forecast of Bike Share Data

- Forecasted ridership using **ARMA, ARIMA, VAR, NN**, and **VAR-ARMA** Ensemble
- Written in **R** using **tsvge**

### Markov Chord Progression Generator

- Implemented **Markov Chain** to create and play new chord progressions
- Built the dataset from listings of common progressions
- Utilized **python** and **pyaudio** for sound generation

### Performance Comparison of **SVM, Decision trees** DT, and **K-nearest neighbors** KNN

- Evaluated three datasets from the UC Irvine ML repository (wine production location estimation, wine quality classification, and breast cancer estimation)
- Written in **python** using **NumPy** and **scikit-learn**

## Teaching

### Taught **Linear Algebra** - Winter/Spring 2021

- Lectured for a **linear algebra** course associated with a ML2 course at SMU