

# Miguel Fernandez Montes

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## EDUCATION

### University of California, Berkeley

Berkeley, CA

MEng Industrial Engineering and Operations Research **GPA: 3.93/4**

Aug. 2019 - May 2020

Specialization in Data Science, Statistical Modeling, Machine Learning and Optimization

### Technical University of Madrid

Madrid, Spain

MS Industrial Technology Engineering **GPA: 8.56/10**

Sep. 2017 - Jul. 2019

### Technical University of Madrid

Madrid, Spain

BS Industrial Technology Engineering **GPA: 8.11/10**

Sep. 2013 - Sep. 2017

Graduated in the **top 3%** of the class

## SKILLS

**Computing:** Python, R, SQL, Matlab, Microsoft PowerBI, Pentaho, BASH

**Libraries:** pandas, scikit-learn, tensorflow, keras, numpy, matplotlib, statsmodels, dplyr, ggplot2

**Research interests:** Experimental Design and Analysis, Computational Statistics, Deep Learning

## EXPERIENCE

### Technical University of Madrid

Madrid, Spain

#### Machine Learning Research Assistant | *Python, tensorflow*

Nov. 2018 - Jul. 2019

*Funded by Collaboration Grant from the Technical University of Madrid*

- Processed medical signals using Python to build **time-frequency representations** of the data
- Investigated **machine learning models** for neurodegenerative disease diagnostics
- Trained and validated deep learning models (1D and 2D **Convolutional Neural Nets**) with **keras**

### Stratebi Business Solutions

Madrid, Spain

#### Business Intelligence Intern | *SQL, Microsoft Power BI, Pentaho, BASH*

Feb. 2018 – Jul. 2018

- Constructed **data warehouse** to streamline the analysis of **1M+ records** from Supply Chain data using **SQL** & Online Analytical Processing tools
- Implemented Extraction, Transformation and Loading (**ETL**) processes to integrate sales and forecast data, reducing processing time by **98%**
- Trained **20+** professionals from the Inspection and Certification industry in **Microsoft PowerBI**

## PROJECTS

### AI for Urbanism: Analysis of urban outdoor areas | *Spacemaker*

Sep. 2019 - Present

*Master of Engineering Capstone Project in partnership with Spacemaker AI*

- Developed **data pipeline** to retrieve and process architectural data from **AWS S3**
- **Engineered** and extracted geometric **features** from urban layouts to create a data set of urban spaces
- Conducted unsupervised learning methods (**principal component analysis** and **clustering**) to categorize outdoor spaces

### Characterizing behavioral changes in energy use

Nov. 2019 - Present

- Performed **EDA** on workspace hourly energy consumption experimental data in collaboration with the **Singapore-Berkeley BEST program**
- Trained **multiple regression models** to understand the impact of gamified energy-saving strategies using **statsmodels**
- Discovered significant reduction of hourly energy consumption by **10kWh** correlated with energy-saving strategies

### Model and Analysis of a Pressure Swing Adsorption System for H<sub>2</sub> Purification

Nov. 2016 - Jul. 2017

- Modeled adsorption curves using **regression** techniques on **experimental data**
- Developed Partial Differential Equations **model** of an industrial gas separation system; simulated the system under varying conditions using **Matlab**
- Performed sensitivity analysis resulting in a preliminary design with **99.9%** product purity and **82.1%** product recovery