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# David E. Lopez

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Motivated analyst with experience in industry, research, and project-based endeavors. Expert in holistic analyses that unite the technical and behavioral components of real-world data to create purpose-driven innovation.

## Education

**UNIVERSITY OF CALIFORNIA, SAN DIEGO**

SAN DIEGO, CA

**B.S. Cognitive and Behavioral Neuroscience**

DEC 2020

*Awards:* Provost Honors (SP19, FA19)

### *Relevant Coursework:*

- *Calculus I - III*
- *Advanced Quantitative Methods (Grad. Level)*
- *Linear Algebra*
- *Introduction to Python*
- *Data Science in Practice*
- *Modeling and Data Analysis*
- *AI Algorithms*
- *Research Methods*
- *Independent Research (Special Projects)*

**OHLONE COLLEGE**

FREMONT, CA

**A.A. Human Development | A.A. Social Sciences**

JUN 2018

## Professional Experience

**UC San Diego (Brain and Cognition Lab)**

SAN DIEGO, CA

**LEAD RESEARCH ANALYST**

DEC 2019 – PRESENT

- Led team of three in coordinating data collection, data exploration, and subject scheduling.
- Implemented automated pipelines in Python, alleviating 20+ hours of weekly duties for lab assistants.
- Developed scripts for data collection and modular functions for specialized data manipulation.
- Performed statistical tests, examining significance of differences among treatment conditions.
- Characterized subjects based on experiment performance and qualitative survey responses using sentiment analysis and statistical testing.
- Utilized Latent Dirichlet Allocation to identify language-learning strategies among subjects and treatments.

**Facebook**

REMOTE

**DATA CHALLENGE FINALIST**

APR 2020 – AUG 2020

- Identified metrics that could be used to measure Instagram Story performance and engagement.
- Collaborated with other finalists to identify weak points in Dubai's public transit infrastructure.
- Highlighted key bus routes and stations at highest risk of the indirect effects of global warming.
- Placed 1st in the final challenge as a result of strengthened skills in SQL and product-sense.

**Whova, Inc.**

SAN DIEGO, CA

**DATA SCIENCE INTERN**

OCT 2019 – APR 2020

- Contributed to productionized models to power a targeted, event-to-event, advertising feature.
- Inspected quality of training and evaluation data to ensure reliability of outcomes.
- Engineered features and refined data classifications for model training data set.
- Analyzed churn account data holistically to identify pain points and solutions.
- Mobilized development of new app features and post-event reporting for client sponsors.
- Resulted in an increase in reactivated accounts and strengthened retention.

**UC San Diego Health (Neural Engineering and Translation Lab)**

SAN DIEGO, CA

**ASSISTANT RESEARCH ANALYST**

JAN 2019 – OCT 2019

- Capped participants for EEG and Transcranial Magnetic Stimulation.
- Developed a framework to maximize data pipeline efficiency using parallel processing in MATLAB.
- Decomposed neural oscillatory rhythms using Fourier transforms to examine and establish baseline brain activity in subjects pre- and post-stimulation, using Python.
- Findings aided in the development of new personalized therapies to treat ADHD and depression.

**Ohlone College**

FREMONT, CA

**ASSOCIATE RESEARCHER**

JAN 2018 – JUN 2018

- Designed interview protocol, led focus groups, and contributed to survey design.
- Lead analytics team, examining correlations and statistical effects using SPSS.
- Identified campus pain points, student profiles, and solutions to inform Dean's decision-making.
- Resulted in the organization of TEDx conferences and increased professional development events.

## Publications

(In Progress) Lopez, D.E., *Word Vectors and Distributional Semantics - From Word2Vec, to GloVe*

(In Progress) Trott, S., Semenuks, A., Bergen, B., Lopez, D.E., *Sub-morphic form-meaning systematicity: the impact of onset phones*

## Select Projects

### Email Newsletter Summarizer / [GitHub](#)

Developed a script that summarizes lengthy newsletter articles into seven sentences each, and presents them as a “Daily Digest” within the user’s browser, along with links to LinkedIn, Gmail, and other popular websites. Accesses emails from Medium.com containing the users daily recommended articles (~20 articles). Created to avoid having to sift through click-bait and rambling articles in order to digest more, and higher quality, articles at the start of each day.

### Brand Perception - Using Spotify and Natural Language Processing / [GitHub](#)

Developed a methodological framework to be used in an upcoming web app aimed at allowing users to identify their “coolness” based on Spotify listening habits, and the quantitative and qualitative components of their favorite music. Collected data from the Spotify API, bridged a connection to the Genius API for lyrical data, and engineered features in order to evaluate “coolness” against seven metrics. This notebook contains an analysis of my own listening habits.

### Content-Based Recommender / [GitHub](#)

Utilized data from MyAnimeList.com to design a content-based recommender. The recommender returns 10 shows that are most likely to be enjoyed by the user, given the user’s inputted show. Takes into account, popularity, episode count of the series, genre, and member ratings. Though it does not utilize collaborative-filtering, the model is able to match many of the recommendations that MyAnimeList.com itself provides on their website.

### The New Alternative (2016 - 2018)

Began a music journalism website aimed at documenting the thriving music scene in the SF Bay Area. Conducted interviews and wrote articles, on top of managing logistics from scheduling to analytics. Experimented with A/B testing to develop layouts and content aimed at improving stickiness, resulting in a 10% increase of weekly active readers. Ended project to focus on my studies at UC San Diego.

## Certifications

### CITI PROGRAM

*Social and Behavioral Research*

*Biomedical Research*

*Clinical Practice*

SAN DIEGO, CA

DEC 2019

JAN 2019

JAN 2019

### AT&T

*Summer Learning Externship (Cert. of Completion)*

REMOTE

JUL 2020

## Skills

### TECHNICAL:

- Python (Pandas, Numpy, Statsmodels, SKLearn, matplotlib, etc.)
- PostgreSQL | MySQL
- R (tidyverse, ggplot2, etc.)
- MATLAB
- Git

### MACHINE LEARNING:

- Linear/Logistic Regression
- Random Forest
- Latent Dirichlet Allocation
- K-Means Clustering
- K-Nearest Neighbors
- Sentiment Analysis
- Principal Component Analysis
- Word Vectorization
- EM Algorithm
- Genetic Algorithm
- DBSCAN
- Hierarchical Clustering
- Text Summarization
- Word Co-Occurrence Models

### EXPERIMENTAL:

- A/B Testing
- Experiment Design
- Quantitative Analysis
- Qualitative Analysis
- Statistical Inference
- Hypothesis Testing