

# ALEX KATZ

## ANALYTICS PROFESSIONAL

✉ [alkatz@ucdavis.edu](mailto:alkatz@ucdavis.edu) ☎ 831-818-6106 📍 La Selva Beach, CA 95076 [in /in/alexander-katz-045061125/](https://www.linkedin.com/in/alexander-katz-045061125/) 📱 Alex-Katz9

## SKILLS

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**MACHINE LEARNING AND VISUALIZATION:** AutoCad/Solidworks, Pandas, Numpy, Scikit-learn, BeautifulSoup, NLTK, Linear Regression, Classification, Natural Language Processing, Cross Validation, Model Selection, Matplotlib, Seaborn

**PROGRAMMING LANGUAGES AND DATABASES:** Python, Ruby, Javascript, PostgreSQL, MySQL, Git, Numpy

## EXPERIENCE

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**Metis, Data Scientist, San Francisco**

Jan. 2021 - Mar. 2021

- Completed an immersive 12-week data science bootcamp with a strong emphasis on project-oriented
- skill-building in problem solving, data wrangling, statistical modeling, machine learning, and communication of deliverables
- Built five end to end data science projects, projects highlights can be seen in the projects section

**GTS, Associate Engineer, Walnut Creek**

May 2019 - Nov. 2020

- Worked with a team of engineers to assess and implement gas transmission systems.
- Created 3D Autocad details of the existing pipeline and in coordination with MAOP and Strength Test engineers
- Proposed details for a reconfigured pipeline capable of meeting all strength and operating requirements as well as preparation for Smart ILI testing (magnetic flux field integrity assessment)
- Considered the environmental, geometric, regulatory and material constraints in order to deliver accurate proposals ready for implementation

**The Whiting-Turner Contracting Company, Project Engineer-Intern, Mountain View, CA**

June 2017 - Sept. 2017

- Worked on a team tasked with the foundations of the project under the Vice President
- Analyzed architecture and engineering drawings and identified errors
- Created markups to be used in negotiations with contractors and oversaw subcontractors and manufacturers (specifically the waterproofing of the foundation)

**Self-Employed Fence Building and Construction,**

Mar. 2011 - July

*Self-Employed Fence Building and Construction Independent Contractor (Summer Employment), Watsonville, CA*

2015

- Completed over 10 projects, including installation of fences, irrigation systems and concrete
- Bid on and procured materials for all projects
- Networked in the local community through email and public fliers to generate business and temporarily hired a new employees

## PROJECTS

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### Fifa Match Predictor

Applied GridSearch to optimize XGBoost, SVC and Logistic Regression to EA Sports Fifa video games' realistic player statistics to determine actual European soccer match results. After implementing an XGBoost regressor and two classifiers in a ML pipeline, optimized for the F1\_score to predict whether a home team would win, lose or draw in any given match. Created two apps from this process. One where the user can input a season and custom teams and the predicted match result is output. In the second a user can customize all 11 starting players for both teams and see the predicted match result.

### Gunspeak in America

Analyzed tweets for sentiment analysis regarding gun violence the month before, after and the immediately following the tragic Las Vegas concert mass shooting. After performing topic modeling and KNN was able to identify trends and forecast discussions about gun violence by the general populace.

### Geographic Tree Locator

Built an ensemble of classification models using geographic features to determine out of 7 different species of trees which would most likely grow in a 30m<sup>2</sup> plot of land. Data was provided by an independent Kaggle competition which drew from forestry data collected in Colorado, Roosevelt National Forest.

### Autonomous Electric Breaking Simulation

Nov. 2018

Utilized bond graph theory (effort and flow sources) in coordination with Matlab to develop a model for electric vehicle braking. The goal was for the system to have a rise time under 0.5s, a settling time under 2 seconds, and a percent overshoot under 10%. Achieved an efficiency of .1903 kWh/km which is nearly equivalent to Tesla Model S, which has an efficiency of .2071 kWh/km for city driving.

### Motocross Pitch-Heave Model and Simulations

Nov. 2018

Investigated the response of a motocross cycle as it moves over road bumps with center of gravity shifting and suspension deflection considered. With known suspension/tire stiffnesses, damping coefficients, masses and motocross layout, the natural frequencies, max bump height and pitch/heave velocity models were generated using knowledge of effort and flow sources with bond graphs inputted into Matlab.

## EDUCATION

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**University of California Davis**

Oct. 2013 - Dec. 2018

Bachelor of Science in Mechanical Engineering