

# JOSEPH ALAN LANE

DATA ANALYST | PROGRAMMER | NETWORK ENGINEER



[JOSEPHALANLANE@GMAIL.COM](mailto:JOSEPHALANLANE@GMAIL.COM)



(805) 990-4502



[HTTPS://WWW.LINKEDIN.COM/IN/JOSEPH-LANE-102204149/](https://www.linkedin.com/in/joseph-lane-102204149/)

## WORK EXPERIENCE

### DATA ANALYST CONSULTANT | LAWRENCE LIVERMORE NATIONAL LABS | FEBRUARY 2021 - CURRENT

- Through a successful relationship in previous semester's consultations, I was tasked with building a python tool for assessing and comparing the performance of ground penetrating radar technologies, used for bomb detection.
- Constructed a thorough ML pipeline beginning with preprocessing data, model optimization and training, model deployment, and subsequent analytics. These were supplemented with various visualizations including confusion matrices, precision-recall curves, ROC's, Andrew's curves, and other aids. The pipeline also featured PCA, logistic regression, model storage, k-means clustering, and other various statistical features. Results summarized and made accessible through a python script.
- For Official Use Only designation.

### WEB DEVELOPER | GREINER AGENCIES INC. | JUNE 2020-CURRENT

- Managing and maintaining [QOPBASEBALL.COM](http://QOPBASEBALL.COM) through HTML, CSS, JavaScript, R, and SQLite.
- Updating seasonal data and computing various statistics for the QOP calculator. Seasonal data size is typically several million rows by about 200 columns.

### DATA ANALYST AND SABERMETRICS RESEARCHER | BIOLA UNIVERSITY | MAY 2018-CURRENT

- Lead research assistant heading various projects concerning MLB pitching, several of which resulted in national and local publications (listed below). The main analysis utilized:
  - Our locally patented statistic (Quality of Pitch—QOP™) to investigate a variety of MLB concerns including the home run controversies of 2017 and 2019, quantifying pitch deception, predicting injury susceptibility in pitchers, and illegal sign stealing detection.
  - Data wrangling, visualizing, and analysis through R (ggplot2, plotly, dplyr, tidyr,...etc.), Python (matplotlib, sklearn, keras...etc), and Excel.
  - Various statistical approaches including GLM's, Neural Networks, Cluster Analysis, and a variety of rudimentary statistical tests.

## PUBLICATIONS AND ADDITIONAL AWARDS

- [EXPLAINING THE MLB HOME RUN RECORD OF 2019 WITH QUALITY OF PITCH](#). The Hardball Times. October 21, 2019. [FULL REPORT HERE](#). (Keynote presentation for CBU's ASA meeting of 2020)
- [EXPLAINING THE MLB 2017 HOME RUN RECORD WITH QUALITY OF PITCH](#) The Hardball Times. May 8, 2018.
- [SIGN STEALING REPORT CORROBORATES EVIDENCE AGAINST ASTROS AND RED SOX](#). The Orange County Register. Aug 19, 2020.
- Graduate of The Torrey Honors College.
- 3D Printer troubleshooting, repair, and deployment.
- Eagle Scout—Elk's Lodge; Moorpark, California.



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## SKILLS

Data Analytics  
Machine Learning  
Data Visualization  
Data Wrangling  
Big Data Analytics  
Web Development  
Data Engineering  
Network Analysis  
Network Engineering

R  
Python  
Tableau  
SQLite  
HTML  
CSS  
JS  
NodeJS  
Koa  
C++  
Matlab

## EDUCATION

### **B.S. DUAL DEGREE IN APPLIED MATHEMATICS (DATA SCIENCE CONCENTRATION) AND WESTERN CLASSICS | BIOLA UNIVERSITY | MAY 2017-MAY 2021**

- Participated in several data driven projects and organizations during my studies as an Applied Math/Data Science student. Provided consultations through the [BIOLA QUANTITATIVE CONSULTING CENTER](#) on the following projects:
  - Lead semester consultant for [LAWRENCE LIVERMORE NATIONAL LABS](#) on the assessment of various bomb detecting radar technologies. Paid to continue work into Summer 2021 to develop a more robust tool in Python, which is described above. (January - May 2021)
  - EFA analysis on a business assessment diagnostics for the V.P. of [ASSOCIATION FOR STRATEGIC PLANNING](#). (January - May 2021)
  - Design of Experiment and financial analysis around the donation methods of [OPEN DOORS USA](#). (January - May 2021)
  - Assisted in various trials in the medical, sociological and psychological fields. (January - May 2021)
- Assisted recruitment and establishment of a student-led data analytics team for researching sabermetrics under Dr. Jason Wilson. (May 2018 - May 2021)
- Founding president of the Math club and the Apologetics (Philosophy/Theology) club. (January - December 2020)