



EDUCATION

- **Cal State University, Fullerton (GPA: 3.63)** Fullerton, CA
M.A. Applied Mathematics *Aug. 2019 – Jan. 2021*
- **University of California, Berkeley** Berkeley, CA
B.A. Applied Mathematics - focus in Computer Science *Aug. 2015 – Dec. 2017*

HONORS & ACHIEVEMENTS

- **Publication** CSUF News
Study Reveals Coronavirus Spreads Faster in Less Prosperous Counties *Jan 2021*

PROJECTS

- **COVID-19 Case and Death Prediction**
 - In the summer of 2020 I initiated and participated in a research project at CSU Fullerton. Working with the Director of the Center for Computational and Applied Mathematics I collected COVID-19 infection and mortality information, as well as mobility data from Google and Apple for over 100 U.S. counties. I then used the data set to build numerous predictive models. The software used neural network, Ridge Regression and Lasso models to predict new cases and mortality rates. I also created models which predicted, based on mobility behavior and number of new cases/deaths, which county the data point came from using LDA, QDA, multinomial regression, as well as neural networks (classification).
- **Analysis and Navigation of Lunar Landing Site 2024**
 - Served as team lead on an graduate project for NASA JPL as part of completing my Masters. We created a MATLAB application which performs coverage analysis and terrain visualization of the Lunar South Pole.
 - **Coverage Analysis:** The user can select a time period, objects, and other parameters depending on the desired visualization. The application then produces visualizations of the Lunar South Pole, over the time period, coloring the surface according to which objects the point is visible to, as well as depicting accurate positions of the ephemeris objects (i.e. elevation angle and azimuth of the objects relative to an observer on the Lunar South Pole).
 - **Terrain Visualization:** The application also allows the user to pick a point on the surface and see the visualization from an Astronaut's perspective. The user can then move the astronaut view around the surface of the South Pole in any direction.

WORK EXPERIENCE

- **Mercury Insurance Group** Brea, CA
Software Developer *November 2020 - Present*
 - : Implement, maintain, and enhance insurance products using Duck Creek Technologies software.
 - : Maintain and enhance a Spring Boot enterprise web application which gathers and analyzes data for our product team.
 - : Utilize Jenkins and Service-Now for deployment and continuous integration of numerous products to production and non-production servers.
- **Mercury Insurance Group** Brea, CA
SW QA Engineer I *March 2018 - November 2020*
 - : Work with product, development, and business teams to develop testing strategies for numerous products.
 - : Reduced the update time for an enterprise applications from a year to six months by writing a java application which completely automated the QA for the update. We were originally releasing updates for 3 products a month but this application gave product, business, and development teams greater time to work on the updates, which in turn doubled the number of products they could apply the update to with each release from, 3 to 6.

- : Designed an application which tests two of our insurance products utilizing **MS Access** and **MS Excel**. The program reads information from Access, determines mock premiums based on that data, sends the information to our QA servers, and then outputs detailed comparisons between the expected premium and the premium our enterprise application produced. Those comparisons are then used to find defects before the final release.
- : Created a **VBA** program for our product department which automated the validation of product updates within Excel documentation between releases.
- : Implemented a program for our QA team which compares data tables between departments to ensure uniformity. The program parses **Excel** worksheets and HTML documents to find the data tables within each and then compares them for discrepancies. Utilizing this program is now standard procedure for our QA team.
- : Built a java application which automates common QA activities which were previously done manually. The app performs web service calls to an enterprise application by sending any number of requests and receiving their corresponding responses. The program also allows the user to parse, update, and search the requests and responses without actually dealing with the files themselves. The user can also resend the request to the web service once updating is complete.

SKILLS

- **Languages:** Python (4+ years), Java (4+ years), R (1 year), MATLAB (1+ years), VBA (3 years), React (1 year)
- **Technologies & APIs:** GIT (5 years), JIRA (2 years), Jenkins (1 year), Spring Boot (1 year), IntelliJ (2 years), junit (2 years), REST (1 year), SOAP (1 year), NAIF Spice Toolkit (1 year), Tensorflow/Keras (2 years), Selenium (2 years), Example Author (1 year)
- **Data Analysis:** Experience with data analysis, statistical learning, and machine learning using Python, R, and MATLAB
- **Mathematical Modeling:** Experience applying Monte Carlo simulations, investigating statistical assumptions and applying parameter estimation to build real world mathematical models.
- **Certifications:** Java SE 8 Programmer I (*Oracle Certified Associate 1Z0-808*).