Jacob Larson

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EDUCATION

B.S. Geophysical Engineering
Colorado School of Mines   **August 2015**

M.S. Aerospace Engineering (Left PhD)
Certificate: Remote Sensing
University of Colorado Boulder   **May 2017**

WORK EXPERIENCE

Research Intern   May 2016 - July 2016
NASA Jet Propulsion Lab Pasadena, CA.

- Adapted a global, data-driven monte-carlo sea level projection model to perform regional projections and presented the model to JPL oceanographers. Skills used: python [scipy.optimize, numpy, matplotlib], MATLAB
- Processed and packaged raw in situ oceanographic data from NASA's Oceans Melting Greenland Mission. Skills used: python [scipy.interpolate, numpy, pandas]
- Presented at the Oceans Melting Greenland Mission's science team meeting on the viability of using satellite altimetry to measure sea level changes in coastal Greenland

Graduate Research Assistant   June 2015 - Present
University of Colorado Boulder, CO.

- Developed a web tool and backend server to compare and assimilate multiple sea level rise projection scenarios to help the scientific community and general public understand the risks of future sea level rise. The project is hosted at http://sealevel.colorado.edu/projection/. Skills used: javascript, d3.js, python [Flask, numpy, pandas, basemap], git, mapbox/leaflet.
- Presented the Sea Level Projection Tool at CIRES Rendezvous conference
- Researched and wrote a 30 page technical report for NASA JPL on the performance of satellite altimetry in coastal Greenland. Skills used: python [pandas, numpy, basemap, matplotlib, multiprocessing], QGIS, LaTeX
- Presented the above research at the European Space Agency's 2017 Coastal Altimetry Workshop in Florence, Italy

Elementary After School STEM Teacher   Fall 2013-Spring 2015
Pleasant View Elementary. Golden, CO.
- Developed and implemented science, nature exploration, and technology curricula for k-5th grade students in a classroom environment

SKILLS

- *Computer/Software:*
  - Advanced: Python (numpy, scikit-learn, pandas, matplotlib, basemap, PEP8 conventions), MATLAB, git, bash / shell scripting, Microsoft Excel, Microsoft Word, Microsoft Powerpoint, LaTeX
  - Competent: javascript, D3.js, Flask, HTML/CSS, sqLite, Quantum GIS
- *Modeling, data, and statistics:* Data mining, multi-variate linear regression, spatiotemporal interpolation methods (kriging, optimal interpolation), principle component analysis, k-means clustering, non-linear inverse methods (monte-carlo, gradient descent), least squares inversion, probability theory, digital signal processing

Other Accomplishments

- Finalist in the 2016 Colorado Rockies data case competition for modeling draft pick trade value. The model was presented to the Rockies' front office at Coors Field. Skills used: python [numpy, pandas, scipy.optimize, matplotlib]