JOSHUAH H. JACOBSON

Research assistant and data scientist

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EXPERIENCE

Data Science Intern

Jupiter Intelligence

May 2019 – Ongoing Boulder, CO

- Developing a statistical model for simulating realistic annual sea level projections at different locations over 30 to 50 year periods.
- Evaluating the impact of uncertainty introduced by the model on Jupiter's *FloodScore* product in a Monte Carlo experiment.

Undergraduate Research Assistant

Kasprzyk Research Group

Aug 2017 – May 2019 Boulder, CO

- Developed *Parasol*, a JavaScript library for interactive visualization of high dimensional data. The library facilitates decision making through improved trade-off analysis in multi-objective optimization problems.
- Established a GitHub organization, website, and multiple web apps to document, test, and showcase library features.

github.com/ParasolJS/parasol-es

Data Engineering Intern

VictorOps Inc.

Jan 2017 – May 2017 Boulder, CO

- Analyzed the company's ETL pipeline for symmetry between large SQL databases of consumer logins.
- Built a corporate R package to streamline SQL and Cassandra database queries and other common data wrangling tasks. This package was reviewed and pushed to production.

PUBLICATIONS

- **Jacobson, J.H.**, et al. "Verification of Spatial Structure in Ensembles of High-Resolution Forecast Fields" (In prep).
- Raseman, W.J., et al. "Parasol: An Open Source, Interactive Parallel Coordinates Library for Multi-Objective Decision Making" Environmental Modelling and Software (2019).

COURSEWORK

- **Probability & Statistics:** Spatial Statistics, Mathematical Statistics, Statistical Learning, Statistical Modeling, Applied Probability, Markov Processes and Monte Carlo Simulations
- **Applied Mathematics:** Multivariable Calculus, Differential Equations, Linear Algebra, Numerical Analysis, Real Analysis, Complex Analysis, Fourier Series and Boundary Value Problems, Data Assimilation
- **Computer Science:** Data Structures, Computer Systems, Algorithms, Intro to Data Science
- **Climate Science:** Climate Modeling, Physical Oceanography, Radiative Transfer and Remote Sensing, Objective Data Analysis

EDUCATION

M.S. in Applied Mathematics

University of Colorado Boulder

Aug 2018 – Ongoing

GPA: 3.9

Thesis: Developing a novel ensemble forecast verification metric which identifies different deviations in spatial structure for multivariate fields at various thresholds. Supervised by Will Kleiber.

B.S. in Applied Mathematics

University of Colorado Boulder

Aug 2015 – May 2019

GPA: 3.7

Minor in Computer Science
Minor in Atmospheric Science
Global Seminar, Rome
Engineering Honors
Dean's List

PROGRAMMING

- **R (advanced):** expertise in *tidyverse* (e.g., ggplot2, dplyr, etc.) and *RandomFields* packages
- **Python (advanced):** extensive experience with statistical modeling, scientific computing, data wrangling, and visualization
- **Julia (intermediate):** infrequent use with optimization and numerical computing
- **JavaScript (advanced)**: author and maintainer of *Parasol*, experience with *D3* and *SlickGrid*
- **Git (advanced):** semantic versioning for software packages
- **Linux/Bash (intermediate):** interacting with supercomputers, installing software, manipulating files and directories

AWARDS

Honorable Mention
Mathematical Contest in Modeling

Active Learning Award
College of Engineering & Applied Science