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 calibration for precipitation fields at various accumulation levels.

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, Italy
Engineering Honors Program
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
- **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
- **Julia (intermediate):** infrequent use with optimization and numerical computing

AWARDS

Honorable Mention
Mathematical Contest in Modeling

Active Learning Award
College of Engineering & Applied Science