JOSHUAH H. JACOBSON

Research assistant and software engineer

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EXPERIENCE

Software Engineer

Kasprzyk Research Group

Aug 2017 – Ongoing Boulder, CO

- Developing *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.
- Maintaining a GitHub organization, website, and multiple web apps to document, test, and showcase library features.

github.com/ParasolJS/parasol-es

Resident Advisor

University of Colorado Boulder

Aug 2017 – May 2018 Boulder, CO

- Promoted an inclusive community in Andrews Hall, home of the Engineering Honors Program.
- Provided resources, support, and emergency assistance for residents.

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.
- Composed scripts for querying SQL and Cassandra databases and collected popular company scripts into an R package for corporate access. This package was reviewed and pushed to production.

PUBLICATIONS

- Raseman, WJ, 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, Statistical Modeling/Learning, Applied Probability, Markov Processes and Monte Carlo Simulations
- **Fundamentals:** Linear Algebra, Numerical Analysis, Complex Analysis, Differential Equations, Fourier Series and Boundary Value Problems
- **Computer Science:** Data Structures, Computer Systems, Algorithms, Intro to Data Science
- **Atmospheric 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 – May 2020

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 data wrangling, statistical modeling, machine learning, 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
- **C/C++ (intermediate):** used in coursework throughout higher education

AWARDS

Honorable Mention
Mathematical Contest in Modeling

Active Learning Award
College of Engineering & Applied Science