Ava Hoffman

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Skills

Languages

Python
SciKit-learn · NumPy · SciPy · Pandas · Statsmodels · Seaborn · Matplotlib · Bokeh · Gensim · Jupyter Notebook

Shell / command line
Git · SLURM · distributed computing · software compilation

R
RStan · RStudio · RMarkdown · leaps · lavaan · segmented · dplyr · reshape2 · bioconductor · sva · ggplot2 · ggtree · bayesplot · ggrepel · gridExtra · semPlot
bioinformatics: extensive, see GitHub

Databases

PostgreSQL
Python interface · Amazon Web Services · SQLAlchemy · psycopg2

Techniques

Prediction - Linear/nonlinear/logistic regression · hierarchical models · mixture models · repeated measures · time series analysis · linear discriminant analysis · random forest · structural equation modeling · design matrices · validation & predictive check · hypothesis testing
primary tools: Rstan · JAGS · SAS

Clustering - feature reduction · principal components analysis · unsupervised learning

Typesetting

LaTeX · **Markdown**

Other

Tableau - (some exposure)
HTML / CSS - (some exposure)
Arduino - (some exposure)

Education

| 2018 | **PhD** · **Ecology** | Colorado State University, USA |

| 2012 | **BS** · **Biology** | University of Virginia, USA |

Experience

2018 — Insight Data Science Fellow — Remote Program
- Launched National Perks Project to improve visitor experience in crowded National Parks (time series with NPS & NOAA datasets)
- Identified, defined, & executed data management requirements within PostgreSQL & Amazon Web Services
- Analyzed, identified, cleaned, & enhanced available data for delivery & processing to end users
- Leveraged diverse data mining techniques, including web scraping
- Developed and maintained customized web tool using Git, Python, Flask, & Heroku, providing visitors with actionable visualizations and insights
- Identified data needs and applied principles of statistics and data science to business and consulting challenges

2017 - 2018 — USDA NIFA Predoctoral Fellow — Colorado State University
Project: Blue Grama Diversity
- Identified, acquired, evaluated, selected, & disseminated information relevant to natural area stakeholders about genetic diversity in a foundational prairie grass, blue grama
- Designed and implemented enhanced data standards & collection, data models, & novel solutions to identify bioinformatics patterns
- Pioneered genomic feature detection (sequencing) and data management of a key grass species, discovering >9,000 genomic cluster features to guide conservation (over 15GB of data)
- Documented and improved practical data collection requirements to maintain scientific integrity & consistency while leading a 6-member team collaboration for a large-scale project
- Modeled Bayesian hierarchical linkages among diverse data sets
- Implemented, improved, and maintained analytical workflows within R including ggplot data visualizations

2013 - 2017 — PhD Researcher — Colorado State University
- Identified & documented diversity within key prairie grasses in response to drought to guide management of grassland resources
- Optimized diverse analytics pipelines to identify, asses, & troubleshoot new, complex data related to transcriptomics, bioanalysis (metabolomics), genomics, phylogenetics, community & ecosystem patterns, physiology, meta-analysis, & climate data
- Planned and implemented data management plans for comprehensive data collection
- Quantified predictive relationships across cross-disciplinary biological data by implementing data science techniques (left)

Honors

| 2017 - 2018 | **Sustainability Leadership Fellow** | Colorado State University |

| 2016 - 2017 | **Vice President for Research Fellow** | Colorado State University |