# Ava Hoffman

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## Skills

### Languages

**R** - (experienced)
*statistical:* lavaan, leaps, rstan, segmented
*manipulation:* dplyr, reshape2, sva
*visualization:* bayesplot, ggplot2, ggtree, ggrepel, gridExtra, semPlot
*bioinformatics:* adegenet, ade4, ape, edgeR, phytools, poppr, WGCNA

**Unix shell / command line** - SLURM, software compilation, server and local machines (experienced)

**Python** - manipulating genomic datasets, basic visualization and tests (familiar)

### Statistical languages

**Stan (Rstan)** - hierarchical and mixture models, design matrices, validation and predictive check (experienced)

**JAGS** - hierarchical models, validation and predictive check (experienced)

**SAS** - repeated measures, mixed models, variety of regression models (experienced)

### Typesetting

**LaTeX** - manuscript and report generation (familiar)

**Markdown** - report generation (familiar)

### Databases & Other

**SQL** - (some exposure)
**HTML** - (some exposure)
**Arduino** - (some exposure)

## Education

2013 - 2018 **PhD, Ecology** — Colorado State University, USA

2008 - 2012 **BS, Biology** — University of Virginia, USA

## Experience

2018 **Insight Data Science Fellow** — Remote Program
- Forecasted optimal park attendance time for visitors according to FB Prophet model and user preferences
- Deployed webapp using Flask and Python

2017 - 2018 **NIFA Predoctoral Fellow** — US Dept of Agriculture
- Pioneered genomic sequencing of a key grass species
- Leveraged >9,000 genomic features to cluster populations and guide conservation
- Modeled linkages between genomics and plant appearance & drought strategy
- Managed 6 team members for a large-scale project

2013 - 2018 **Doctoral Researcher** — Colorado State University
- Optimized bioinformatics pipeline for gene expression of key prairie plants (using the Trinity algorithm and Trinotate tools), examining expression of >100,000 gene transcripts
- Synthesized data from existing studies in meta-analysis to quantify predictive power of dominant grass for ecosystem response to climate change.
- Modeled scalar response to nitrogen (metabolomic, physiological, & community) using path analysis, module clustering, & Bayesian analysis of grasses in response to climate change
- Processed highly multivariate trait responses to a gradient of water availability using Bayesian analysis and principal components
- Mentored 7 undergraduate researchers
- Submitted 3 project reports to grant agencies, published 12 peer reviewed manuscripts, presented 15 scientific talks

2012 - 2013 **Drought gene discovery** — DuPont-Pioneer
- Performed assays & gene analysis in biotech industry

## Honors & Awards

2017 - 2018 **NIFA Predoctoral Fellowship** — US Dept of Agriculture
20% acceptance rate

2018 **Research Mentoring for Inclusivity & Advancement in STEM Fellow** — Colorado State University
25% acceptance rate

2017 - 2018 **Sustainability Leadership Fellow** — Colorado State University
<10% acceptance rate

2016 - 2017 **Vice President for Research Fellow** — Colorado State University
<10% acceptance rate

2016 **Ecological Society of America Hackathon** — Ft. Lauderdale, FL
First place beginner app developer award