

# JORIE KOSTER-HALE

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[github.com/jokoha](https://github.com/jokoha) | [jorie.scripts.mit.edu/web](http://jorie.scripts.mit.edu/web)

## SKILLS

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**Programming:** R, python, MATLAB, SQL, UNIX/shell

**Tools:** Pandas, SciPy, Scikit-learn, NumPy, Matplotlib, Seaborn, RShiny, ggplot, SPSS, PostgreSQL, Flask

**Techniques:** Logistic/linear regression, mixed effects models, PCA, ICA, Gaussian mixture models, clustering (k-means, HCA, LDA), k-nearest neighbor, support vector machines, Bayesian inference modeling.

**Communication:** Skilled at sharing complex concepts with a range of audiences, including scientists, government, patients, clinical providers, and the public (30+ talks, 15+ peer reviewed publications).

**Leadership/Project Management:** Directed multiple teams on cross-institution, multi-year neuroimaging projects, supervised and trained 10+ students

## EXPERIENCE

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**Fellow, Insight Data Science** **Boston MA** **2016-present**

- Developed Cytometric, an online tool to automatically analyze flow cytometry data using Python, Bootstrap, Flask and SQL, saving immunologists hours of time in manual gating and increasing reproducibility in analyses.
- Clustered cancerous cell samples to separate blast cells from healthy cells, using unsupervised machine learning techniques, including hierarchical clustering, iterative k-means, and Gaussian mixture models.
- Matched human clustering performance, allowing high throughput flow cytometry and drastically increasing options for personalized cancer treatment.

**Post Doctoral Fellow, Harvard University** **Cambridge MA** **2014-2016**

- Designed novel experimental protocols to characterize the neural basis of human social reasoning.
- Used Bayesian inference and reinforcement learning to model human behavior and brain function.
- Created, documented, maintained lab-wide fMRI analysis pipeline (matlab, R, UNIX); used by 10+ lab members.
- Established lab's neuroimaging protocol and capacities, including obtaining ethics approval, designing and coding new experiments, learning and training others on new MRI technology and scanning sequences.
- Wrote multiple successful federal, state, and private grants, funding new postdoc position.

**Data Analyst and Engineer, Falling Colors Technology** **Santa Fe NM** **2011-present**

- Analyzed large-scale datasets (e.g. consumer surveys, billing and claims data, client services) to examine the efficacy of state-wide substance abuse treatment (factor analyses, predictive modeling, hierarchical clustering).
- Offered data-driven project recommendations to FCT management and State stakeholders.
- Onboarded incoming staff; designed and wrote training manuals and webinars for new website functionality.

**PhD. Researcher, Massachusetts Institute of Technology** **Cambridge MA** **2009-2014**

- Collected and analyzed 10+ billion data-point databases (200+ subjects) of neuroimaging data.
- Built models (e.g. SVM, logistic regression) to link human social behavior and brain function.
- Linked neural function to clinical deficits in autism and child development. Worked with non-typical populations (children, Deaf adults/children, blind adults, and adults with autism), and American Sign Language interpreters.
- National Science Foundation Fellow; School of Science Best Graduate Thesis Award

## EDUCATION

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Ph.D. Neuroscience, **Massachusetts Institute of Technology** **Cambridge MA** **2014**  
B.A. Linguistics & Cognitive Sciences; Mathematics, **Pomona College** **Claremont CA** **2009**