

# Alexander Franks

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Moore/Sloan Data Science and WRF Innovation in Data Science Postdoctoral Fellow  
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## RESEARCH INTERESTS

Bayesian hierarchical modeling; covariance estimation; data fusion and integration; measurement error; non-ignorable missing data; analysis of proteomics and genomics data; spatial-temporal analysis of complex dynamic systems;

## EDUCATION

**Harvard University**, Cambridge, MA 2010-2015  
*Ph.D.*, Statistics

**Brown University**, Providence, RI 2005-2010  
*ScM*, Applied Math., 2010  
*BA*, Computer Science and Applied Math, 2009

- Graduated with Honors, **4.0** (out of 4) cumulative GPA

## SELECTED HONORS

- ASA W. J. Youden Award in Interlaboratory Testing (2015)
- Best Research Paper Award - MIT Sloan Sports Analytics Conference (2015)
- Best Post-Qualifying Talk Award - Harvard University Statistics Department (2014)
- Junior Travel Award, ISBA 2014
- IBM Best Student Paper Award - New England Statistics Symposium (2013)
- Bok Center Certificate of Distinction in Teaching (2012 and 2013), Harvard
- Best Graduate Student Talk - Harvard Symposium on Applied Statistics (2012)
- Smith Family Graduate Fellowship (2011), Harvard University
- Undergraduate Teaching and Research Award (2007), Brown University

## RESEARCH

### Published

- 2015 Gábor Csárdi, **Alexander Franks**, David S Choi, Edoardo M Airoidi, and D. Allan Drummond. Accounting for experimental noise reveals that transcription dominates control of steady-state protein levels in yeast. *PLoS Genetics*, 2015. <http://biorxiv.org/content/early/2014/09/21/009472>.
- 2015 Lo-Hua Yuan, Anthony Liu, Alec Yeh, Aaron Kaufman, Andrew Reece, Peter Bull, **Alexander Franks**, Sherrie Wang, Dmitri Ilushin, and Luke Bornn. A mixture-of-modelers approach to forecasting NCAA tournament outcomes. *Journal of Quantitative Analysis in Sports*, Accepted.
- 2015 **Alexander Franks**, Andrew Miller, Luke Bornn, and Kirk Goldsberry. Characterizing the spatial structure of defensive skill in professional basketball. *Annals of Applied Statistics*, 2015. <http://arxiv.org/abs/1405.0231>
- 2015 Edward Wallace, Jamie L. Kear-Scott, Alexandra Rojek, **Alexander Franks**, Pawel Laskowski, Michael Schwartz, Bogdan Budnik, Edoardo Airoidi, and D. Allan Drummond. Stress-triggered protein assembly is widespread and reversible. *Cell*, Revision Invited.
- 2014 **Alexander M. Franks**, Gábor Csárdi, D. Allan Drummond, and Edoardo M. Airoidi. Estimating a structured covariance matrix from multilab measurements in high-throughput biology. *Journal of the American Statistical Association*, 110(509):27–44, 2015.
- 2013 Hygor Piaget M. Melo, **Alexander Franks**, André A. Moreira, Daniel Diermeier, José S. Andrade Jr, and Luís A. Nunes Amaral. A solution to the challenge of optimization on "golf-course"-like fitness landscapes. *PloS one*, 8(11):e78401, 2013.

### Under Revision

- 2014 **Alexander Franks**, Florian Markowitz, and Edoardo Airoidi. Estimating cellular pathways from an ensemble of heterogeneous data sources. *Annals of Applied Statistics*, Revision Invited. <http://arxiv.org/pdf/1406.5799>

### Working Papers

**Alexander Franks**, Edoardo M Airoidi, and Donald Rubin. Novel specifications for Bayesian models of non-ignorable missing data. In Preparation.

**Alexander Franks**, Francois Caron, and Luke Bornn. Bayesian models for time-varying rank data. In Preparation.

Nikolai Slavov, **Alexander Franks**, and Edoardo M Airoidi. Quantification of post-transcriptional regulation across human tissues. In Preparation.

## INVITED TALKS

- Amherst Sports Analytics Forum (2015)
- MIT Sloan Sports Analytics Conference (2015)
- Special Seminar, Department of Biostatistics, UCLA (2015)
- Special Seminar, Department of Biostatistics, Harvard University (2015)

## TEACHING EXPERIENCE

**Department of Statistics**, Harvard University Sep. 2011 - Present

*Teaching Fellow*

- STAT120: Introduction to Applied Bayesian Inference (2014)
- STAT183: Learning From Big Data (2014)
- STAT230: Multivariate Analysis (2013)
- STAT111: Introduction to Statistical Inference (2012)
- STAT220: Bayesian Data Analysis (2012)
- STAT104: Introduction to Quantitative Methods for Economics (2011)

*Head Teaching Fellow*

- STAT111: Introduction to Statistical Inference (2013)

**Department of Computer Science**, Brown University Sep. 2007 - May 2009

*Head Teaching Fellow*

- Introduction to Artificial Intelligence (2007, 2008)

## PROFESSIONAL EXPERIENCE

**thefind.com**, Mountain View, CA

May 2008 - Aug. 2008

*Intern, Software Engineer*

- Data mining and MySQL database design
- Helped improve natural language processing tools for search engine

**Department of Chemical and Biological Engineering**, Northwestern University  
Summer 2006

*Undergraduate Research Assistant*

- Social networks research, database design
- Developed PyGrace, a Python interface to Grace (plotting tool)

## TECHNICAL SKILLS

*Programming Languages:* R, Python, MATLAB, Java, C