Alexander Franks

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 - Harvarvard Symposium on Applied Statistics (2012)
- Smith Family Graduate Fellowship (2011), Harvard University
- Undergraduate Teaching and Research Award (2007), Brown University

PAPERS

Published

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

2014 **Alexander M. Franks**, Gábor Csárdi, D. Allan Drummond, and Edoardo M. Airoldi. Estimating a structured covariance matrix from multilab measurements in high-throughput biology. *Journal of the American Statistical Association*, 110(509):27–44, 2015.

2015 Gábor Csárdi, **Alexander Franks**, David S Choi, Edoardo M Airoldi, 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 Edward WJ Wallace, Jamie L Kear-Scott, Evgeny V Pilipenko, Michael H Schwartz, Pawel R Laskowski, Alexandra E Rojek, Christopher D Katanski, Joshua A Riback, Michael F Dion, **Alexander M Franks**, et al. Reversible, specific, active aggregates of endogenous proteins assemble upon heat stress. *Cell*, 162(6):1286–1298, 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 Markowetz, and Edoardo Airoldi. 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 Airoldi, 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.

Alexander Franks, Edoardo M Airoldi, and Nikolai Slavov. 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