Rick Farouni | Curriculum Vitae

Department of Psychology, The Ohio State University

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I am currently a doctoral candidate in quantitative psychology (statistics applied to the analysis of psychological data) at the Ohio State University. My research is focused on the applications of latent variable modelling and machine learning to behavioral, neuroimaging and bioinformatics data. I hold a master's degree in mathematical statistics and I have acquired a strong foundation in multivariate statistics, scientific computing, and both the biological and psychological sciences. I am also passionate about the open access movement in education, research, and academia and I am dedicated to rigorous science in the public interest.

Education

Academic Qualifications

- **The Ohio State University** — **Ohio, USA**
  PhD in Quantitative Psychology — *2015–Present*
  Advisor: Professor Robert Cudeck

  Dissertation Topic: *'Deep Latent Generative Models'*
- **The Ohio State University** — **Ohio, USA**
  Master of Science in Statistics [GPA 3.80/4] — *2012-2014*
- **The Ohio State University** — **Ohio, USA**
  Master's Degree in Quantitative Psychology — *2012-2014*

  Thesis Project: *'Latent Variable Modelling of Categorical Item Responses in a Hierarchical Bayesian Framework'*
- **The Pennsylvania State University** — **Pennsylvania, USA**
  Bachelor's Degree in Psychology with High Distinction [GPA 3.93/4] — *2011-2012*

Course Projects

- **Multivariate Statistics** (STAT 7560): *'Retinotopic Mapping of the Human Visual Cortex Using Independent Component Analysis'*
- **Advanced Computational Statistics** (STAT 7730): *'Bayesian Analysis of Noisy Images Using Markov Random Fields'*
- **Statistical Consulting** (STAT 6750): *'Modelling Categorical Perception of Speech Sounds using Beta Regression'*

Experience

Internship

- **The Department of Biomedical Informatics Summer Internship Program (BMI SIP)**
  Research Lab of Professor Ewy Mathé, The Ohio State University *2016*

  Project: Developing an R package and a Shiny app for the analysis of data generated from genome-wide chromatin accessibility assays such as ATAC-seq and DNase-seq with the goal of identifying regulatory elements involved in the cancer epigenetic landscape.

Teaching Experience

- **Graduate Teaching Associate** **Ohio, USA**
  The Ohio State University *2013–present*

  Teaching Assistant for Psychology 2220: Data Analysis in Psychology

- **Test Preparation Instructor** **Moscow, Russia**
  Instructor of the Graduate Management Admission Test (GMAT) *2009-2012*

- **Teacher of English as a Foreign Language** **Moscow, Russia**
  Teacher of General and Academic English *2001-2009*

Journal Review Service

- **Psychometrika**
  Ad Hoc Reviewer *2015*
- **Psychological Methods**
  Ad Hoc Reviewer *2016*

Conference Presentations

- **Joint Statistical Meetings** **Seattle**
  Poster Presentation *2015*

  Poster Title: Across-Subject Predictive Modeling of fMRI BOLD Responses to Faces using a sparse Bayesian Group Factor Analysis Model

Awards and Fellowships

- **Graduate Student Conference Presentation Award**
  The Ohio State University *2015*
- **The Center for Cognitive and Brain Sciences Summer Graduate Fellowship**
  The Ohio State University *2015*

  Project Proposal: *'Decoding the Pixels of the Face Image from the Voxels of fMRI BOLD Activity Patterns'*

- **The Social and Behavioral Sciences Summer Fellowship**
  The Ohio State University *2014*
- **University Fellowship**
  The Ohio State University *2012*

Technical Skill Set

- **Statistics and Machine Learning**
  - ***Scientific Programming Languages:*** Proficient in and comfortable transitioning between *R*, *Python*, and *Julia* depending on computing goals.
  - ***Deep Learning Frameworks:*** Experienced in using Tensorflow and MXNet.
  - ***Probabilistic Programming Languages:*** Proficient in Stan; Familiar with Venture.
- **Computer Science**
  - ***Cluster and High-Performance Computing:*** Good knowledge of running neuroimaging and bioinformatics analysis pipelines on the Ohio Supercomputer (uses the Torque scheduling system). Basic familiarity with distributed cluster computing using the Spark platform.
  - ***Web and Software Development Tools:*** LaTeX, Linux OS, Git, Docker, and Bash. Basic knowledge in website development tools such as HTML, CSS, and Jekyll.
- **Domain Specific Software**
  - ***Neuroimaging Analysis Software:*** Nipype, PyMVPA, FreeSurfer, SPM, FSL, and Pycortex.
  - ***Bioinformatics Software:*** Experienced in analysing functional genomics data using R's Bioconductor set of tools, Bowtie2, MACS2, SAMtools, and bedtools.

Publications and Software

Journal Papers

- Baskin, E., Farouni, R., and Mathe, E. (2016). ALTRE: workflow for defining ALTered Regulatory Elements using chromatin accessibility data. Submitted.

Software Development

- ALTRE: A Workflow for Identifying ALTered Regulatory Elements using Chromatin Accessibility Data. Github Repo: https://github.com/Mathelab/ALTRE.

Personal Details

- **Country of Previous Residence:** Russia (12 years)
- **Marital Status:** Married
- **Interests and Hobbies:** Evolutionary Biology, World Cuisines, Experimental Music
- **Languages Spoken:** English, Arabic, Russian, Spanish (limited)