Andrew Jones

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Education

Princeton University • Princeton, NJ 2019 –
PhD, *Computer Science*
Advisor: Barbara E. Engelhardt

Brown University • Providence, RI 2016 – 2017
MSc, *Computer Science*
Advisor: Thomas Serre

Brown University • Providence, RI 2012 – 2016
BSc, *Neuroscience*

Research

Graduate Researcher – Princeton University 2019 –
Princeton, NJ

- Currently developing statistical and machine learning tools to analyze high-dimensional biomedical data.
- Focus on probabilistic models for analysis and alignment of complex data types drawn from multiple modalities.
- **Publications**:
  - Gaussian process spatial alignment: LINK
  - Contrastive Poisson latent variable models: LINK
  - Multi-group Gaussian processes: LINK
  - Probabilistic contrastive principal component analysis: LINK

Associate Computational Biologist – Broad Institute of MIT and Harvard 2018 – 2019
Cambridge, MA

- Built and applied statistical tools to study the genomic characteristics of cancer cells, such as predicting transcriptional patterns of cancer cells that are targeted by small molecule therapies.
- **Publications**:
  - Statistical modeling of drug response in cancer cell lines: DOI:10.1101/2020.03.04.976217

Graduate Research Assistant – Brown University 2016 – 2017
Providence, RI

- Developed computer vision models for analyzing the eye gaze patterns of children with Autism Spectrum Disorder, resulting in a Master's Report paper.

Undergraduate Research Assistant – Brown University 2014 – 2016
Providence, RI

- Created a tool to improve patients' control of the speed of a computer cursor using brain-computer interfaces.

Teaching

Teaching Assistant – COS424 (Fundamentals of ML), Princeton University Spring 2021

Teaching Assistant – COS126 (Intro. Computer Science), Princeton University Fall 2020

Lead Teaching Assistant – Computational Vision, Brown University Fall 2015

Publications, Preprints, and Abstracts (⋆joint authorship)

- **A Jones**, FW Townes, D Li, BE Engelhardt. "Alignment of spatial genomics and histology data using deep Gaussian processes." BioRxiv (2022).
- **A Jones**, FW Townes, D Li, BE Engelhardt. "Contrastive latent variable modeling with application to case-control sequencing experiments." The Annals of Applied Statistics (2021).
- D Li, **A Jones**, S Banerjee, BE Engelhardt. "Multi-group Gaussian Processes." arXiv:2110.08411 (2021).
- A Mandyam, **A Jones**, K Laudanski, BE Engelhardt. "Nested policy reinforcement learning." arXiv:2110.02879 (2021).
- Y Cohen-Sharir, et al. "Selective vulnerability of aneuploid human cancer cells to inhibition of the spindle assembly checkpoint." Nature (2021).

- C Zirbesa, **A Jones**, K Manzel, N Denburg, and J Barrash. "Assessing the Effects of Healthy and Neuropathological Aging on Personality with the Iowa Scales of Personality Change." Developmental Neuropsychology (2021).
- D Li*, **A Jones***, BE Engelhardt. "Probabilistic Contrastive Principal Component Analysis." arXiv:2012.07977 (2020).
- **A Jones**, A Tsherniak, JM McFarland. "Post-perturbational transcriptional signatures of cancer cell line vulnerabilities." BioRxiv (2020).
- JM McFarland, et al. "Multiplexed single-cell transcriptional response profiling to define cancer vulnerabilities and therapeutic mechanism of action." Nature Communications 11.1 (2020): 1-15.
- A Warren, **A Jones**, T Shibue, WC Hahn, JS Boehm, F Vazquez, A Tsherniak, JM McFarland. "Global computational alignment of tumor and cell line transcriptional profiles." BioRxiv (2020).
- **A Jones**, JM McFarland, M Kocak, A Tsherniak. "Predicting small molecule mechanism of action from transcriptional profiles using deep neural networks." Deep Learning to Accelerate Drug Discovery (2018).
- **A Jones**, T Serre. Computational modeling of visual saliency and attention in the Smart Playroom. 2017 Computer Science Master's Paper (2018).
- DE Warren, MJ Sutterer, J Bruss, TJ Abel, **A Jones**, H Kawasaki, M Voss, M Cassell, MA Howard, D Tranel. "Surgically disconnected temporal pole exhibits resting functional connectivity with remote brain regions." bioRxiv (2017): 127571.
- **A Jones**, D Milstein, L Hochberg, B Jarosiewicz. "Inferring intended speed from curvature as a means to improve decoding in brain-computer interfaces for people with paralysis." Neuroscience Honors Thesis (2016).

Awards and Honors

Best Graduate Student Poster, EAC-ISBA	2021
Broad Institute Travel Award	2018
Neuroscience Honors, Brown University	2016
Sigma Xi Honor Research Society	2016
Undergraduate Teaching and Research Award	2015

Service

Journal reviewing
- Nature Methods; Nature Biotechnology; Genome Biology; Nature Machine Intelligence; Nature Communications

Workshop reviewing
- "Your Model is Wrong: Robustness and misspecification in probabilistic modeling" (NeurIPS 2021)

Undergraduate Research Mentor – Princeton University 2020 –
- Primary mentor for two undergraduates pursuing thesis research projects.

Contributing Writer – Princeton Insights 2020 –

Research Mentor – Broad Institute Summer Scholars Program Summer 2018

Meiklejohn Peer Advisor – Brown University 2013–2016

Talks

- *A Bayesian nonparametric model for aligning spatial gene expression data* (2021). NeurIPS Workshop: Learning Meaningful Representations of Life.
- *Predicting small molecule mechanism of action from transcription* (2018). Broad Institute/Dana Farber Cancer Program Meeting.
- *TensorFlow Tutorial* (2018) Broad Institute, Cancer Data Science. I organized and led a full-day TensorFlow tutorial and workshop.

Other Work Experience

Data Science Intern – AthenaHealth	Summer 2017
Graduate Researcher – Broad Institute of MIT and Harvard	Summer 2016
Undergraduate Researcher – University of Iowa, Dept. of Neurology	Summers 2014, 2015