Andrew Jones

Email: aj13@princeton.edu • Personal website: cs.princeton.edu/~aj13

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**:
  - Contrastive Poisson latent variable models: arXiv:2102.06731
  - Probabilistic contrastive principal component analysis: arXiv:2012.07977
  - Nested policy reinforcement learning: arXiv:2110.02879

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

- Built statistical tools to study the transcriptional patterns of cancer cells that are targeted by small molecule therapies, resulting in a first-author manuscript and a conference presentation.
- Other projects included analyzing drug-perturbed single-cell RNAseq data and building a computational tool to align the transcriptomes of cancer cell lines and patient tumors.
- **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

- The BrainGate lab develops brain-computer interfaces (BCIs) for patients with tetraplegia, with the aim of restoring these patients' communication and mobility
- Created a tool to improve the patients' control of the speed of a computer cursor while using the BCI, and shared my findings in my undergraduate honors thesis.

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. "Contrastive latent variable modeling with application to case-control sequencing experiments." The Annals of Applied Statistics (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 Fellowships

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 projects.

Contributing Writer – Princeton Insights 2020 –

Research Mentor – Broad Institute Summer Scholars Program Summer 2018

Meiklejohn Peer Advisor – Brown University 2013–2016

Talks

- *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