Andrew Jones

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Education

Princeton University • Princeton, NJ — 2019 – Dec. 2022 (expected)
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*

Work Experience

Quantitative Research Intern – Viking Global Investors — Summer 2022

Research

Graduate Researcher – Princeton University — 2019 –
Princeton, NJ

- Focus on Bayesian statistics, Gaussian processes, and biomedical data applications.
- **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: link

Undergraduate and Master's Research Assistant – Brown University — 2014 – 2017
Providence, RI

- Developed computer vision models for analyzing eye gaze patterns of children with Autism Spectrum Disorder.

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**⋆, D Cai⋆, BE Engelhardt. "Multi-fidelity Bayesian experimental design using power posteriors." NeurIPS Workshop on Gaussian Processes, Spatiotemporal Modeling, and Decision-making Systems (2022).
- **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 (2022).
- **A Jones**, GW Gundersen, BE Engelhardt. "Linking histology and molecular state across human tissues."
- T Fitzgerald, **A Jones**, BE Engelhardt. "A Poisson reduced-rank regression model for association mapping in sequencing data."
- A Mandyam, D Li, D Cai, **A Jones**, BE Engelhardt. "Efficient Bayesian Inverse Reinforcement Learning via Conditional Kernel Density Estimation." Fourth Symposium on Advances in Approximate Bayesian Inference (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

Princeton SEAS Travel Award (2022); Best Graduate Student Poster, EAC-ISBA (2021); Broad Institute Travel Award (2018); Neuroscience Honors, Brown University (2016); Sigma Xi Honor Research Society (2016); Brown University Undergraduate Teaching and Research Award (2015).

Service

Reviewing

- **Journals**: Nature Methods; Nature Biotechnology; Genome Biology; Nature Machine Intelligence; Nature Communications.
- **Conferences**: Artificial Intelligence and Statistics (2023); Learning Meaningful Representations of Life (NeurIPS 2022 workshop); Your Model is Wrong: Robustness and misspecification in probabilistic modeling (NeurIPS 2021 workshop)

Conference organization

- Session on Contrastive Dimension Reduction at Joint Statistical Meetings 2022.

Undergraduate Research Mentor – Princeton University 2020 –

- Primary mentor for two undergraduates pursuing thesis research projects.

Contributing Writer – Princeton Insights 2020 – 2022

Research Mentor – Broad Institute Summer Scholars Program Summer 2018

Meiklejohn Peer Advisor – Brown University 2013–2016