www.djstrouse.com

DJ Strouse

(717) 826-1742
danieljstrouse@gmail.com

Education

PhD, Physics — **Princeton University** — **2012 – 2017**
- *Funding/Awards*: Hertz Fellowship, Department of Energy Computational Sciences Graduate Fellowship
- *Research*: maximally informative clustering with the information bottleneck
- *Advisor*: William Bialek

MPhil, Information Engineering — **University of Cambridge** — **2011 – 2012**
- *Funding/Awards*: Churchill Scholarship
- *Research*: hierarchical linear-nonlinear cascade models of dendritic integration of synaptic inputs
- *Advisor*: Máté Lengyel

BA, Physics and BS, Math — **University of Southern California** — **2006 – 2011**
- *Funding/Awards*: USC Presidential Scholarship, USC Order of the Laurel and the Palm, Magna Cum Laude
- *Research*: quantum algorithms, quantum information theory, the role of dendritic computation in recognition memory
- *Advisors*: Bartlett Mel, Paolo Zanardi, Andrew Childs

Professional

Machine Learning Intern — **Spotify** — **Summer 2016 – present**
- Analyzed ad campaign AB tests using Bayesian hypothesis testing and presented results to key stakeholders
- Developed probabilistic models of musical taste with applications in recommendations, fraud detection, and ad targeting
- Applying thesis research on maximally informative clustering to segment users based on musical taste

Data Science Intern — **Zynga** — **Summer 2015**
- Specialized in classification of imbalanced datasets
- Surveyed and tested a wide range of resampling and cost-sensitive methods on a variety of datasets

Publications

- **DJ Strouse** & David Schwab. *The deterministic information bottleneck*. Neural Computation. (in review)
- Xundong Wu, **DJ Strouse**, Gabriel Mel, & Bartlett Mel. *Memory Capacity of a Dendrite-Based Online Recognition Memory*. Neuron. (submitted)
- **DJ Strouse** & David Schwab. *The deterministic information bottleneck*. UAI,[1] 2016. [link]
- Andrew Childs & **DJ Strouse**. *Levinson's theorem for graphs*. Journal of Mathematical Physics, 2011. [link]

Presentations

Talks

- APS[2] March Meeting (Baltimore, MD). *The deterministic information bottleneck*. Mar 2016. [link]
- Physics-Informed Machine Learning (Santa Fe, NM). *The deterministic information bottleneck*. Jan 2016.
- Microsoft Research Cambridge (Cambridge, UK). *The information bottleneck method*. Apr 2012.
- Open Science Summit (Berkeley, CA). *Open science is more than open publishing - meet CoLab*. Jul 2010. [link]
- Institute for Quantum Computing (Waterloo, Ontario). *A Levinson's theorem for scattering on graphs*. Jun 2010.

Posters

- **DJ Strouse** & David Schwab. *The deterministic information bottleneck*. UAI.[1] Jersey City, NY. Jun 2016.
- **DJ Strouse** & David Schwab. *The deterministic information bottleneck: optimizing memory for prediction*. SfN.[3] Washington, DC. Nov 2014.
- **DJ Strouse**, Balazs Ujfalussy, & Máté Lengyel. *Dendritic subunits: the crucial role of input statistics and a lack of two-layer behavior*. Cosyne.[4] Salt Lake City, UT. Feb 2013.

[1] Uncertainty in Artificial Intelligence
[2] American Physical Society
[3] Society for Neuroscience
[4] Computational and Systems Neuroscience

- **DJ Strouse**, Jakob Macke, Roman Shusterman, Dima Rinberg, & Elad Schneidman. *Behaviorally-locked structure in a sensory neural code*. Sensory Coding & Natural Environment (SCNE). Vienna, Austria. Sept 2012.
- **DJ Strouse** & Máté Lengyel. *Hierarchical generalized linear models of dendritic integration and somatic membrane potential*. Cosyne.[4] Salt Lake City, UT. Feb 2012.
- Bartlett Mel, Xundong Wu, & **DJ Strouse**. *Optimizing online learning capacity in a biologically-inspired memory structure*. Cosyne.[4] Salt Lake City, UT. Feb 2012.
- Xundong Wu, **DJ Strouse**, & Bartlett Mel. *Optimizing online learning capacity in a biologically-inspired neural network*. SfN.[3] San Diego, CA. Jun 2011.

Other Experience

Professional

- Co-Organizer, Hertz Foundation East Coast Fellows Retreat, Oct 2015
- Co-Organizer, Cosyne[4] workshop on Dendritic computation in neural circuits, Mar 2013
- Co-Founder, CoLab - an online set of tools to enable open & massively collaborative science, Dec 2009 – Apr 2012

Educational

- Computational and Cognitive Neuroscience Summer School (CCNSS). Beijing, China. Aug 2013.
- Advanced Course in Computational Neuroscience (ACCN). Bedlewo, Poland. Aug 2012.
- Methods in Computational Neuroscience (MCN). Woods Hole, MA. Aug 2011.

Skills and Languages

- *Programming languages*: Python, R, Matlab, SQL
- *Human languages*: English (fluent), Spanish (conversational), Mandarin Chinese (conversational)
- *Hobbies*: running, traveling, hiking, travel/miles/points hacking