

**DANIEL (DJ) STROUSE**  
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Born: Nov 24, 1987  
 in Elgin, IL  
 Citizenship: USA  
 Hometown: Newark, DE  
 Last updated: Jan 26, 2015

## Education

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| 9/2017 | PhD in Physics<br>Princeton University, Princeton, NJ<br><i>Advisor: William Bialek</i>  |
| 9/2012 | Master's of Philosophy (MPhil) in Engineering<br>University of Cambridge, Cambridge, UK<br><i>Advisor: Máté Lengyel</i>                          |
| 5/2011 | B.A. Physics ( <i>magna cum laude</i> ), B.S. Mathematics ( <i>magna cum laude</i> )<br>University of Southern California (USC), Los Angeles, CA |

## Research Interests

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- Design principles of biological systems
- Inference and prediction in biological systems
- Quantitative approaches to cultural phenomena

## Grants, Honors, & Awards

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| 2013-2017 | Hertz Foundation Fellowship  |
| 2012-2016 | DoE Computational Sciences Graduate Fellowship ( <i>awarded in 2011</i> )                      |
| 2011-2012 | Churchill Scholarship  |
| 2011      | Hertz Foundation Fellowship Finalist   |
| 2011      | NSF Graduate Research Fellowship ( <i>declined for DoE CSGF</i> )                              |
| 2011      | USC Order of the Laurel and the Palm ( <i>highest honor bestowed upon graduating seniors</i> ) |

## Journal Publications

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- DJ Strouse** & D. Schwab. *Compression for prediction: the deterministic information bottleneck*. (in preparation)
- X. Wu, **DJ Strouse**, & B. Mel. *Optimizing online learning capacity in a biologically-inspired neural network*. (in preparation)
- AM Childs & **DJ Strouse**. *Levinson's theorem for graphs*. Journal of Mathematical Physics. Aug 2011. [arxiv] [journal]

## Posters

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- DJ Strouse** & David Schwab. *The Deterministic Information Bottleneck: Optimizing Memory for Prediction*. Society for Neuroscience (SfN). Washington, DC. November 2014. [link]
- DJ Strouse**, Balazs Ujfalussy, & Mate Lengyel. *Dendritic subunits: the crucial role of input statistics and a lack of two-layer behavior*. Computational and Systems Neuroscience (Cosyne). Salt Lake City, UT. February 2013.
- 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. September 2012.
- DJ Strouse** & Mate Lengyel. *Hierarchical generalized linear models of dendritic integration and somatic membrane potential*. Computational and Systems Neuroscience (Cosyne). Salt Lake City, UT. February 2012.

Bartlett Mel, Xundong Wu, & **DJ Strouse**. *Optimizing online learning capacity in a biologically-inspired memory structure*. Computational and Systems Neuroscience (Cosyne). Salt Lake City, UT. February 2012.

Xundong Wu, **DJ Strouse**, & Bartlett Mel. *Optimizing online learning capacity in a biologically-inspired neural network*. Society for Neuroscience (SfN). Washington, DC. November 2011.

Xundong Wu, **DJ Strouse**, & Bartlett Mel. *Optimizing online learning capacity in a biologically-inspired neural network*. Annual Joint Symposium On Neural Computation. San Diego, CA. June 2011.

**DJ Strouse**. *Reliable brains from unreliable neurons – the search for synfire chains in the brain*. Stanford Amgen Scholars Symposium. Palo Alto, CA. August 2010.

## Talks

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|--------|---|
| 8/2012 | Advanced Course in Computational Neuroscience Symposium (Będlewo, Poland)<br><i>Title: Optimal dynamics for fast network responses</i>                  |
| 4/2012 | Microsoft Research Cambridge, Machine Learning Group (Cambridge, UK)<br><i>Title: The Information Bottleneck Method</i>                                 |
| 8/2011 | Methods in Computational Neuroscience Symposium (MBL, Woods Hole, MA)<br><i>Title: Sniff-modulations of the olfactory bulb vocabulary</i>               |
| 8/2010 | Stanford Amgen Scholars Symposium (Palo Alto, CA)<br><i>Title: Reliable brains from unreliable neurons – the search for synfire chains in the brain</i> |
| 7/2010 | Open Science Summit (University of California, Berkeley, CA) [link]<br><i>Title: Open science is more than open publishing – meet CoLab</i>             |
| 6/2010 | Institute for Quantum Computing Colloquium (Waterloo, Ontario, Canada) [link]<br><i>Title: A Levinson's theorem for scattering on graphs</i>            |

## Professional

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|-----------------|--|
| 10/2015         | Organizer, Hertz Foundation East Coast Fellows Retreat   |
| 10/2014-present | Co-Founder, <i>Lilibr</i> , a mobile application to help users annotate physical books, alone and collaboratively      |
| 3/2013          | Organizer, Computational and Systems Neuroscience (Cosyne) workshop on <i>Dendritic computation in neural circuits</i> |
| 12/2009-4/2012  | Co-Founder, <i>CoLab</i> , an online set of tools designed to promote open and massively collaborative science         |

## Summer Schools

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|--------|---|
| 8/2013 | Computational and Cognitive Neuroscience Summer School (CCNSS)<br>Cold Spring Harbor Asia, Beijing, China                 |
| 8/2012 | Advanced Course in Computational Neuroscience (ACCN)<br>FENS-IBRO European Neuroscience School Programme, Będlewo, Poland |
| 8/2011 | Methods in Computational Neuroscience (MCN) summer course<br>Marine Biological Laboratory (MBL), Woods Hole, MA           |

## Other Skills & Information

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COMP. LANGUAGES    Matlab, R, Python, Mathematica

HUMAN LANGUAGES    English (fluent), Mandarin (conversational), Spanish (conversational)

HOBBIES    hiking, running, traveling, using the web to improve how science is done and shared