

Brendan Chambers

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Creative data researcher. Previously mapped coordination in biological neural networks. Verbal & visual communicator.

EDUCATION

PhD University of Chicago, Committee on Computational Neuroscience 2016
· Motif analysis and temporal patterns in a neural communication network
BA Oberlin College, Department of Computer Science 2011

RESEARCH EXPERIENCE

University of Chicago Postdoctoral Fellow 2017
· Transferred machine learning strategies to develop better analysis & simulation tools for spiking recurrent networks, for the Cortical Circuits and Network Neuroscience Lab

University of Chicago PhD Candidate 2011 - 2016
· Discovered emergent statistics of a complex communication network
· Supervised & mentored two undergraduates, now placed into research jobs
· Created simulations of balanced spiking networks to complement real data
· Refined a custom signal-acquisition pipeline & developed data quality tests
· Hot Topics Nominee, Society for Neuroscience

Oberlin College Honors Scholar 2010
· Developed attention-steered deep RBM for analyzing distorted words

Rockwell Collins Engineering Summer intern 2009
· Supported virtual sensing project & documented C++ code

SELECTED PROJECTS

Discovered voting cliques using web-scraping of Chicago city council data 2018
Character-level text generation of political speech with RNNs via Keras 2018
Investigated racialized sentiment by clustering streaming Twitter statuses 2017
High-dimensional parameter-tuning for models: stochastic swarm searches 2017
Identified candidate causal influence in noisy neural communication 2014
Evolutionary algorithm solvers for substitution cyphers and TSP 2010

SKILLS

Programming languages (years)

· Python (4) JavaScript (1) Matlab (6) Java (4) Scheme (1)

Data analysis

· Motif counting, community detection, dimensionality reduction, inference of reliable interactions, designing statistical nulls, stochastic optimization, hierarchical clustering, machine learning

Visualization and information design (years)

· Matplotlib (4) Adobe Illustrator (5) Gephi (3) NetworkX (4) Graph-Tool (1) D3.js (1)
· Over 40 panels of scientific visualizations published

Communication

· Published three first-author publications in competitive peer-reviewed journals
· Frequently presented complex computational research to audiences with diverse expertise
· Symposium speaker at NetSci 2017 interdisciplinary conference for network science
· 50 Most-Downloaded Articles, PLOS Computational Biology