Thomas Donoghue

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Languages: English (native), French (professional proficiency)

Areas of Specialization

Cognitive Neuroscience - Electrophysiology - Data Science

Education

2014 - *current* **Ph.D., Cognitive Science**
UC San Diego, La Jolla, California, USA

2011- 2014 **Bachelors of Arts and Sciences (BA&Sc) Honours Cognitive Science**
McGill University, Montreal, Quebec, Canada
Major: Honours Cognitive Science; Minor: Philosophy
Graduated First Class Honours with Distinction

2008 - 2011 **Diplome D'Etudes Collegial (DEC) Double Diploma in Science & Social Science**
John Abbott College, Sainte Anne de Bellevue, Quebec, Canada
In Quebec, a DEC is a necessary intermediary degree between high school & university

Training & Courses

Summer 2017 **Neurohackweek**
University of Washington eScience Institute, Seattle, WA, USA
A project based course on neuroimaging & data science.
Competitive application (~25% acceptance rate)

Summer 2016 **Advanced Scientific Programming in Python**
G-Node & Centre for Integrative Neuroscience and Neurodynamics, Reading, United Kingdom
Short course on scientific programming. Competitive application (9.9% acceptance rate).

Research Experience

9/2014-*current* **Advisor: Dr. Bradley Voytek** (Graduate Student Researcher)
UC San Diego, Department of Cognitive Science, Cognitive & Neural Dynamics Lab
Mechanisms of neural communication using human electrophysiological recordings.

3/2015-6/2015 **Advisor: Dr. Virginia De Sa** (Graduate Rotation Student)
UC San Diego, Department of Cognitive Science, Natural Computation Lab
Brain-computer interfaces (BCIs) to investigate the role of neural oscillations in cognition.

11/2013 **Advisor: Dr. Ghislaine Dehaene-Lambertz** (Visiting Scholar)
Neurospin, INSERM-CEA Cognitive Neuroimaging Unit, Neurospin, Saclay, France
Connectivity analysis in infant electrophysiology investigating language and cognition.

5/2013-6/2014 **Advisor: Dr. Sylvain Baillet** (Research Assistant)
Montreal Neurological Institute, Department of Neurology & Neurosurgery
Functional connectivity during sleep, using magnetoencephalography and polysomnography.

9/2012-9/2014 **Advisor: Dr. Kris Onishi** (Research Assistant)
McGill University, Department of Psychology - McGill Infant Development Cluster (MIDC)
Psycholinguistics & Developmental Psychology: language perception & statistical learning.

Conference Proceedings (Peer Reviewed)

2017 Gao, R, **Donoghue T** & Voytek B (2017). Automated generation of cognitive ontology via web text-mining. *Proceedings of the 39th Annual Conference of the Cognitive Science Society. Poster also presented at Cognitive Science, 2017 - London, United Kingdom.*

Conference Abstracts & Posters (Selected)

Underlined are research assistants under my direct supervision

2017 **Donoghue T** & Voytek B. Assessing approaches for estimating the electrophysiological 1/f background spectrum. *Society for Neuroscience*, Washington DC, USA, 2017.

2017 **Donoghue T** & Voytek B. Automated meta-analysis of event-related potentials and their correlates through text-mining. *Cognitive Neuroscience Society*, San Francisco, CA, 2017.

2016 **Donoghue T**, Fox W, Kim A, & Voytek B. The relation of oscillatory-phase to visual perception is dependent on attention and location of stimuli. *Society for Neuroscience*, San Diego, CA, USA, 2016.

2016 Sebastian P, **Donoghue T**, Noto T, Haxby S, & Voytek B. Data mining to generate novel hypotheses for the genetic underpinnings and functional roles of cortical oscillations. *Society for Neuroscience*, San Diego, CA, USA, 2016.

2016 **Donoghue T**, Sebastian P, & Voytek B. Automated Analysis of Resting State Cortical Oscillatory Characteristics using Magnetoencephalography (MEG). *International Conference on Biomagnetism*, Seoul, South Korea, 2016.

2015 Gougelet R, **Donoghue T,** Piper M, Althoff A, Urbach TP, & Voytek B. Influencing Visual Target Detection with Oscillatory Phase-Specific Stimulus Presentation. *Society for Neuroscience*, Chicago, IL, USA, 2015.

Research Grants & Fellowships

1/2016 **Small Grants Award, Temporal Dynamics of Learning Centre (TDLC)**
2 200$ Research Funding for an EEG project on the temporal dynamics of perceptual learning

Honours & Awards

3/2014 **Owens Scholar Award, Johns Hopkins University** - Declined
18 000$ USD additional funding over 3 years offered with admission to Johns Hopkins

11/2013 **Samuel de Champlain Quebec Program for International Collaboration**
Funds provided by my research supervisor (Dr. Baillet) for travel to NeuroSpin in France

Research Presentations

1/2016 **'The Effect of Oscillatory Phase on Perception and Cognition'** (Research Talk)
Temporal Dynamics of Learning Centre (TDLC) - All Hands Meeting, UC San Diego

10/2015 '***Brainstorm* software for MEG/EEG analysis'** (Assisted with Interactive Workshop)
2015 Los Angeles Brainstorm Workshop, University of Southern California

11/2013 **'Introduction to *Brainstorm* Software for MEG/EEG analysis'** (Presentation)
NeuroSpin Research Institute, Saclay, France

10/2013 '***Brainstorm* software for MEG/EEG analysis'** (Assisted with Interactive Workshop)
Scale-free Dynamics and Networks in Neurosciences (conference), Université de Montreal

Academic Service

6/2013-5/2014 **Co-President,** Student Association of Cognitive Science, McGill University
Provided events, activities and support to all Cognitive Science undergraduate students

9/2012-5/2013 **VP Internal,** Student Association of Cognitive Science, McGill University
Internal affairs and organizing events for the undergraduate cognitive science community

Science Outreach

10/2016-*current* **Volunteer Tutor, San Diego Refugee Tutoring**, San Diego, CA, USA
Tutoring children from families with refugee status with their schoolwork

1/2014-*current* **Science Writer / Editor / Podcast Host, Useful Science Organization** (usefulscience.org)
Writing clear, concise and useful summaries of scientific research for a general audience

1/2015-6/2016 **School Presenter, UCSD**, San Diego, CA, USA
Giving presentations to local schools (all levels) on topics in neuroscience

9/2014-6/2016 **Penpal, Mary Fey Pendleton School**, Oceanside, CA, USA
Penpal with grade 7-8 students, as a mentor and to foster an interest in science as a career

2/2013-2/2014 **High School Presenter, Brain Awareness Organization**, Montreal, QC, Canada
Gave presentations on how the brain works and the neural effects of drugs

Teaching Experience

August 2017 **Instructor - Bots on the Brain**, Clubes de Ciencia Mexico, Monterrey, Mexico
Developed and taught a 1-week, intensive, hands-on, research focused course, for Clubes de Ciencia, a non-profit organization promoting science education across Mexico.

2015-*present* **Instructor - Introduction to Cognitive Science**, Academic Connections, UC San Diego
With co-instructor Eric Leonardis, we designed and implemented a course offering University credit classes to high-achieving high school students. (75 hours of instruction)
Summer 2017: Student Ratings - Course: 4.71/5, Instructor: 4.86/5
Summer 2016: Student Ratings - Course: 4.80/5, Instructor: 4.92/5
Summer 2015: Student Ratings - Course: 4.59/5, Instructor: 4.92/5

2015-*present* **Teaching Assistant,** Department of Cognitive Science, UC San Diego
COGS 108: Data Science in Practice (Winter '18, Prof. Bradley Voytek, TA Evals: XX/5.00)
COGS 108: Data Science in Practice (Spring '17, Prof. Bradley Voytek, TA Evals: 4.32/5.00)
COGS 107B: Systems Neuroscience (Winter '17, Prof. Douglas Nitz, TA Evals: 4.60/5.00)
COGS 17: Neurobiology of Cognition (Winter '16, Dr. Christine Johnson, TA Evals: 4.58/5.00)
COGS 9: Introduction to Data Science (Fall '15, Prof. Bradley Voytek, TA Evals: 4.34/5.00)
COGS 3: Introduction to Computing (Spring '15, Prof. Bradley Voytek, TA Evals: 4.54/5.00)
Awarded *Excellence in Teaching* Award from the UCSD Cognitive Science Dept.
COGS 107B: Systems Neuroscience (Winter '15: Prof. Douglas Nitz, TA Evals: 4.69/5.00)
Awarded *Outstanding Teaching* Award from the UCSD Cognitive Science Dept.

2014 **Discussion Group Leader, McGill University,** Department of Philosophy
PHIL 221: Introduction to History and Philosophy of Science (Prof. Ian Gold)

Guest Lectures

Summer 2017 **'How to: Science'** - COGS14A: Introduction to Research Methods, UC San Diego
Spring 2017 **'Data Wrangling'** - COGS 108: Data Science in Practice, UC San Diego
Winter 2016 **'Methods in Neuroscience'** - COGS 17: Neurobiology of Cognition, UC San Diego
Fall 2015 '**Thinking About Thinking' -** COGS 1: Introduction to Cognitive Science, UC San Diego
Winter 2015 **'Intro to EEG for BCI Applications'** - Cognitive Science Students Society, UC San Diego

Academic Memberships

2016-*current* Cognitive Neuroscience Society
2014-*current* Society for Neuroscience

Research Mentorship

10/2016-*current* **Luyanda Mdanda**, Undergraduate Research Assistant, Voytek Lab, UC San Diego
10/2015-*current* **Priyadarshini Sebastian**, Undergraduate Research Assistant, Voytek Lab, UC San Diego
Frontiers of Innovation Scholars Program (FISP) Trainee Award Winner
10/'15-12/'16 **Aeri Kim**, Undergraduate Research Assistant, Voytek Lab, UC San Diego
6/2015-7/2016 **Will Fox,** High School Intern, Voytek Lab, UC San Diego
Current: Undergraduate student at Massachusetts Institute of Technology (MIT)

Computational Skills & Contributions

Languages Fluent in **Python** and **Matlab**, comfortable with **R** and **Shell** scripting (bash) and experience with **Javascript** (including D3), **Java**, **HTML** and **CSS.**

Code Code contributions are available on Github (https://github.com/TomDonoghue).