

WILLIAM MAYNER

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- EDUCATION**
- PhD Student in Neuroscience** *Madison, WI, September 2016–present*
University of Wisconsin–Madison
- **Advisor:** Giulio Tononi, MD, PhD
 - **Research:** I am interested in the neural basis of subjective experience. In particular, I work on developing integrated information theory and testing its predictions about consciousness, perception, and sleep using biologically-realistic neural networks and virtual organisms evolved with genetic algorithms.
- Brown University** *Providence, RI, 2009–2013*
Sc.B. Mathematics–Computer Science
- Selected coursework:** Consciousness; Laboratory in Computational Cognitive Neuroscience; Artificial Intelligence; Neural Modeling Laboratory; Introduction to Neuroscience; Design and Analysis of Algorithms; Combinatorial Topology; Multiprocessor Synchronization; Cryptography; Programming with Data Structures and Algorithms; Models of Computation; Fundamental Problems of Geometry; Abstract Algebra; Linear Algebra; Creating Modern Web Applications.
- RESEARCH EXPERIENCE**
- Research Assistant and Programmer** *Madison, WI, January 2014–present*
- Joined the integrated information theory group, led by Dr. Giulio Tononi, at the Center for Sleep and Consciousness at the University of Wisconsin–Madison.
 - Designed and implemented software to calculate integrated information and other quantities and structures of interest in integrated information theory.
 - Developed web-based visualization tools for exploring integrated-information-theoretic properties of networks.
 - Implemented genetic algorithms for evolving virtual organisms.
- Summer Program in Computational Mathematics** *Chicago, IL, Summer 2012*
- Studied a novel 2-parameter family of kernel functions for data interpolation, under the direction of Dr. Greg Fasshauer, Professor of Applied Mathematics at the Illinois Institute of Technology, in the Research Experience for Undergraduates program.
 - Contributed to a Matlab code repository of numerical experiments and conducted theoretical investigations of closed forms for Green’s functions.
 - Presented results at the Joint Mathematics Meetings 2013, the Young Mathematicians Conference 2012 at Ohio State University (abstract was one of 55 accepted out of 110 submitted), and Brown University’s 2013 Symposium for Undergraduates in the Mathematical Sciences.
- SCIENTIFIC SOFTWARE**
- **PyPhi:** A Python toolbox for computing integrated information and related quantities.
 - **PyAnimats:** Python software for evolving virtual organisms and investigating their dynamics and integrated-information-theoretic properties.
 - **integratedinformationtheory.org and vPhi:** A website for learning about integrated information theory, which features **vPhi**, a visual interface to PyPhi.
 - **centerforsleepandconsciousness.med.wisc.edu:** The web presence of the Center for Sleep and Consciousness.
- PUBLICATIONS**
- **Mayner, W. G. P.**, Marshall, W., Marchman, B., Albantakis, L., Findlay, G. & Tononi, G. *PyPhi: A toolbox for integrated information theory* (in preparation).
 - Findlay, G., Marshall, W., Albantakis, L., **Mayner, W. G. P.** & Tononi, G. *Separating physical, functional, and phenomenal equivalence* (in preparation).
- TECHNICAL SKILLS**
- Python, Matlab, C++, git, distributed computing, L^AT_EX, CoffeeScript/Javascript, Unix/Linux system administration, shell programming, full-stack web development (Node.js, MongoDB, AngularJS, Express, and other modern web technologies)