

# Christopher DiMattina, PhD

## Biographical

Date of Birth: July 12<sup>th</sup> 1976, Stamford CT (USA Citizen)

## Current Position

2009 Research Associate Case Western Reserve University  
Advisor: Michael Lewicki, Department of Electrical Engineering and Computer Science

## Education

2000-2009 PhD Neuroscience Johns Hopkins University  
Field: Computational Neuroscience  
Advisor: Kechen Zhang, Biomedical Engineering (BME) & Neuroscience (2005-2009)  
Thesis: "Neural network analysis of sensory processing and active data collection"  
Previous advisor: Xiaoqin Wang, BME & Neuroscience (2001-2005)

1994-1998 BA Mathematics & Psychology Cornell University  
*Magna cum Laude* with concentrations in Cognitive Studies & Biological Psychology

1993-1994 Non-matriculated student Binghamton University  
11 college courses in Math, Physics and Computer Science concurrent with high school

## Special Courses

2003 Methods in Computational Neuroscience Woods Hole MBL

## Selected Honors

- Eagle Boy Scout (1990)
- Phi Beta Kappa (1998)
- Magna cum Laude (1998)
- Pauline and Irving Tanner Cornell Dean's Scholar (1994-1998)  
Top 30-50 incoming Cornell freshman
- Cornell University College Scholar (1995-1998)  
Honors independent major program at Cornell. Accepts only ~40 students per class.

## Professional Experience

1999-2000 Research Programmer New York University  
Developed SLICE©, an IGOR program for brain slice neurophysiology for Dr. Dan Sanes.  
Program is available at: [http://www.cns.nyu.edu/~sanes/slice\\_software/](http://www.cns.nyu.edu/~sanes/slice_software/).

## Selected Teaching Experience

1994 CS 140 Introduction to Computer Programming Stan Reks  
Instructed weekly laboratory for computer science course at Binghamton University

2002 440.770 Physiology of the Central Nervous System Steven Hsiao  
Teaching assistant for a core graduate-level systems Neuroscience course

2006 440.800 Neuroscience A (1<sup>st</sup> yr. Medical School) Jay Baraban  
Taught a discussion group of about 15 medical students with Dr. Mark Walker

2008 440.800 Neuroscience A (1<sup>st</sup> yr. Medical School) Jay Baraban  
Taught a discussion group of about 19 medical students with Dr. Eric Young

### Research Funding Awards

2002 NIH/NIDCD National Research Service Award F31-DC05892

Title: "Neural encoding of primate vocalizations in auditory cortex"

Salary and equipment for 3 years (2002-2005). Research with Xiaoqin Wang analyzing database of monkey vocalizations, developing synthetic "virtual vocalization" stimuli, and testing the accuracy of virtual vocalization stimuli with single-unit recordings from auditory cortex of awake marmosets..

### Professional Societies

Society for Neuroscience, International Neural Network Society, IEEE

### Professional Service

2007 Reviewer: International Joint Conference on Neural Networks (IEEE/INNS)

### Scientific Publications

[1] Kotak V.C. , **DiMattina C.** & Sanes D.H. (2001). GABA<sub>B</sub> and Trk receptor signaling mediates long-lasting inhibitory synaptic depression. ***Journal of Neurophysiology*** 86(1): 536-540.

[2] **DiMattina C.** & Wang X. (2006). Virtual vocalization stimuli for investigating neural representations of species-specific vocalizations. ***Journal of Neurophysiology*** 95(2):1244-62.

[3] **DiMattina C.** & Zhang K. (2008). How optimal stimuli for sensory neurons are constrained by network architecture. ***Neural Computation*** 20(3):668-708.

[4] **DiMattina C.** & Zhang K. (2009). Modifying a neural network gradually without changing its input-output functionality. ***Neural Computation*** (*In Press*).

[5] **DiMattina C.**, Anderson M., Young E.D. & Zhang K. (2009). Optimal stimuli and invariant stimuli in hierarchical sensory networks: A quadratic analysis. *Submitted*.

[6] **DiMattina C.** & Zhang K. (2009). Active data collection for estimation and comparison of sensory processing models. *In preparation*.

[7] **DiMattina C.**, Parmigiani, G. & Zhang K (2009). Efficient estimation of tuning curves and psychometric functions using active data collection. *In preparation*.

### References

Available upon request

### Contact

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