

# Jeremy Lewi

XXXX XXXX Atlanta, GA / Tel# (XXX) XXX-XXXX [jeremy@lewi.us](mailto:jeremy@lewi.us) <http://www.lewilab.org>

## SUMMARY

A bioengineer whose research addresses the problem: “**How to make optimal decisions in an uncertain world?**” I have developed, implemented, and validated algorithms for optimizing neurophysiology experiments. My research is a combination of machine learning, high-performance computing, and math.

## EDUCATION

**Georgia Institute of Technology**, Atlanta, GA Fall 2004- Spring 2009

**Phd Bioengineering** GPA: 3.92

- **Thesis:** Sequential, optimal design of neurophysiology experiments.
- Research overview: Developed algorithms to automatically optimize neurophysiology experiments in real time.
- Simulations showed our algorithm could reduce the amount of data needed to train neural models by an order of magnitude.
- Validated our methods by analyzing real experimental data and by proving some mathematical theorems.
- Developed parallel simulations using MPI.
- Demonstrated the ability to run our algorithm in real-time.

### Honors/Awards

- DOE Computational Science Fellow (Fall 2005- Spring 2009)
- Hybrid Neural Microsystems IGERT Fellow (Fall 2004- Fall 2005)

**Columbia University**, New York, NY Fall 2000- Spring 2004

**B.S Biomedical Engineering** GPA: 4.134

### Honors/Awards

- **Valedictorian**
- Hertz Fellowship Finalist
- Skalak Award in Biomedical Engineering

## Work Experience

**LIINC Lab Columbia University**, New York, NY Spring 2001-Summer 2004

**Research Assistant**

- Validated model of sound recognition by implementing it using low level neural simulator (GENESIS)
- Built and maintained computer network to support neural modeling.

**DOE Joint Genome Institute**, Walnut Creek, CA June-August 2007

**Research Internship**

- Developed active learning algorithm to train a classifier to automatically detect problems in the genome sequencing production line.

**HiSynergy Communications, New York, NY**

June-September 2000

**Web Programmer**

- JavaScript, ASP, and Visual Basic Programming.
- Wrote ASP scripts to interface with SQL databases.
- Built message boards.
- Created ASP program that generated customizable reports analyzing the statistics of message boards.

**Technical Skills:**

- Matlab
- MPI
- Windows
- Cluster administration
- Java
- C++
- Open MP
- Unix/Linux
- .NET

**Selected Publications**

Lewi, J., Butera, R. & Paninski, L. *Sequential optimal design of neurophysiology experiments*.  
Neural Computation (in press).

Lewi, J., Butera, R. & Paninski, L. *Efficient active learning with general linear models*.  
Proceedings of the Eleventh International Workshop on Artificial intelligence and Statistics, 2007.

Lewi, J., Butera, R. & Paninski, L. *Real-time adaptive information-theoretic optimization of neurophysiology experiments*. Advances in Neural Information Processing Systems 19, MIT Press, 2007.

**Honorable mention in the student paper competition.**