

# JONATHAN R. KARR

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## EDUCATION

**Stanford University**, Stanford, CA

Candidate for Ph.D. in Biophysics and M.S. in Medicine, June 2012

Advisor: Markus Covert

GPA: 4.00/4.00

**Massachusetts Institute of Technology**, Cambridge, MA

B.S. Physics, B.S. Brain & Cognitive Sciences, June 2006

GPA: 4.95/5.00

## EXPERIENCE

**Department of Bioengineering, Stanford University**, Palo Alto, CA

Graduate Student, Covert Lab, July 2007-present. Developing automated, principled methods to infer and visualize cancer cell signaling networks from clinical follicular lymphoma flow cytometry data. Developing web-based software which performs constrained Bayesian structural inference on flow cytometry data, assembles consensus signaling networks of disease, and constructs animated signaling networks.

**McGovern Institute for Brain Research, Massachusetts Institute of Technology**, Cambridge, MA

Student Researcher, DiCarlo Lab, Spring 2006. Helped develop an x-ray-based device that reports the location of implanted electrodes. Implemented commercial imaging hardware. Developed image acquisition software. Integrated the device into experimental protocols in coordination with other researchers.

**McGovern Institute for Brain Research, Massachusetts Institute of Technology**, Cambridge, MA

Student Researcher, Fee Lab, Summer 2004-2005. Developed an x-ray-based device that accurately computes the location of avian brain structures for electrode implantation. Designed and constructed imaging hardware. Developed image processing software. Developed x-ray safety protocols with the Environmental Health and Safety Office.

**Biotechnology Division, National Institute of Standards and Technology**, Gaithersburg, MD

Student Researcher, Bioprocess Measurements Group, Summer 2003. Improved fluorescence measurement techniques by modulating fluorophore excitation to reduce quenching. Integrated modulation hardware into an existing flow cytometry system. Evaluated the system using fluorescein.

**Research Laboratory of Electronics, Massachusetts Institute of Technology**, Cambridge MA

Developer, MasteringPhysics CyberTutor Project, Spring 2003. Worked with a team to develop MasteringPhysics, an online homework and tutorial supplement to MIT's introductory Mechanics and Electricity & Magnetism courses, and complement to *University Physics* by Young and Freedman. Created, edited, and designed graphics for homework problems. MasteringPhysics is now sold commercially by Pearson Education and Addison Wesley, and is currently the most popular online physics homework and tutorial system.

**Division of Neuroscience, Walter Reed Army Institute of Research**, Forest Glen, MD

Student Researcher, Neurobehavioral Assessment Group, 2001-2002. Led a team to evaluate the neuroprotective efficacy of candidate drugs against battlefield trauma. Simulated battlefield injury in rats by simultaneous blunt head trauma and hypoxia. Evaluated neuroprotective efficacy using cognitive (Morris water maze) and vestibulomotor (beam-balance and narrow beam-walk) tasks. Presented research at annual Walter Reed Army Institute of Research student symposium. Currently the Neurobehavioral Assessment Group is working with Maas BiolAB to develop a drug formula appropriate for first-response battlefield treatment.

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## **Radiology Department, Suburban Hospital, Bethesda, MD**

Volunteer, 1998-2002. Acquired, developed, and delivered x-ray films. Assisted mobile x-ray teams. Retrieved and filed patient records. Transported patients.

## **Steven J. Karr, AIA Inc., Rockville, MD**

Webmaster, 1999-present. Designed and maintained a graphic identity, website, and online record management system for an architectural firm. Integrated existing records into the record management system.

## LEADERSHIP

### **Alpha Epsilon Pi Fraternity, Massachusetts Institute of Technology, Boston, MA**

President, 2004-2005. Managed all operations including budgeting, maintenance, and external relations.

Philanthropy Chair, 2003-2004. Organized community service programs, including a children's fair.

Academic Chair, 2003-2004. Organized career workshops, study sessions, and faculty dinners.

### **B'nai Brith Hillel Foundation, Massachusetts Institute of Technology, Cambridge, MA**

Secretary, 2004. Developed and maintained a website. Organized, edited, and published a weekly newsletter.

Served as regional council representative.

### **Order of Omega Honor Society, Massachusetts Institute of Technology, Cambridge, MA**

Secretary, 2005. Developed and maintained a website. Coordinated recruitment efforts. Organized community service projects.

## COMMUNITY SERVICE

### Oct 2007-present Mentor, **Stanford University Pre-Grad/Pre-Med Mentoring Program**

Mentored pre-grad and pre-med undergraduates.

### Oct 2007-present Mentor, **Stanford University Minority Medical Alliance Mentorship Program**

Mentored underrepresented pre-medical students.

### Jul 2007-present Mentor, **Stanford Medical Youth Science Program**

Mentored low-income high school students.

### Jun - Aug 2005 Volunteer, **Recording for the Blind & Dyslexic**

Recorded audio versions of textbooks for blind and dyslexic students.

## SKILLS

ActionScript, C++, HTML, JavaScript, L<sup>A</sup>T<sub>E</sub>X, MATLAB, MySQL, Pascal, Perl, PHP, R, Scheme

## HONORS AND AWARDS

**National Defense Science and Engineering Graduate Fellowship**

**National Science Foundation Graduate Fellowship**

**Masters of Science in Medicine Scholarship**

**Stanford Graduate Fellowship**

**Department of Homeland Security Fellowship** (declined)

## MEMBERSHIPS

Phi Beta Kappa

Sigma Pi Sigma

Sigma Xi Scientific Research Honor Society

Order of Omega Honor Society

## ACTIVITIES

Running, Biking, Intramural Soccer, Percussion, Cooking