

John Anthony Capra

- CONTACT INFORMATION** Gladstone Institutes
1650 Owens Street *E-mail:* tony.capra-at-gladstone.ucsf.edu
San Francisco, CA 94158 *WWW:* www.cs.princeton.edu/~tonyc/
- RESEARCH INTERESTS** Using comparative genomics to identify functional elements and to understand the dynamics of genome evolution and functional adaptation.
- Investigating the relationship between protein sequence, structure, and function by combining techniques from computer science, information theory, and statistics.
- EDUCATION** **Gladstone Institutes, University of California**, San Francisco, CA USA
Postdoctoral Fellow, October 2009 – Present
- Advisor: Katherine Pollard
- Princeton University**, Princeton, New Jersey USA
Ph.D., Computer Science, June 2009
- Advisor: Mona Singh
 - Thesis: *Algorithms for the Identification of Functional Sites in Proteins*
- M.A., Computer Science, Oct. 2006
- Columbia College, Columbia University**, New York, New York USA
B.A., Computer Science, May, 2004
B.A., Mathematics, May, 2004
- Pembroke College, Oxford University**, Oxford, UK
Columbia University Oxford Scholar, Oct. 2002 – June 2003
- Subject: Mathematics
- PUBLICATIONS** **Capra JA**, Pollard KS, and Singh M. Novel genes exhibit distinct patterns of function acquisition and network integration. Submitted.
- Capra JA***, Paeschke K*, Singh M and Zakian VA. G-quadruplex DNA sequences are evolutionarily conserved and associated with distinct genomic features in *Saccharomyces cerevisiae*. *PLoS Computational Biology*. 6(7): e1000861, 2010. * co-first authors.
- Capra JA**, Carbonne L, Riesenfeld SJ, and Wall JD. Genomics through the lens of next-generation sequencing. *Genome Biology*. 11(6): 306, 2010.
- Capra JA**, Laskowski RA, Thornton JM, Singh M and Funkhouser TA. Predicting Protein Ligand Binding Sites by Combining Evolutionary Sequence Conservation and 3D Structure. *PLoS Computational Biology*. 5(12): e1000585, 2009.
- Capra JA**. Algorithms for the Identification of Functional Sites in Proteins. *Ph.D. Thesis, Princeton University*. June 2009.
- Capra JA** and Singh M. Characterization and Prediction of Residues Determining Protein Functional Specificity. *Bioinformatics*. 24(13): 1473-1480, 2008.

Capra JA and Singh M. Prediction of Functionally Important Residues from Sequence Conservation. *Bioinformatics*. 23(15):1875-82, 2007.

Rosen G, La Porte N, Diechtiareff B, Pung C, Nissanov J, Gustafson C, Bertrand L, Gefen S, Fan Y, Tretiak O, Manly K, Park M, Williams A, Connolly M, **Capra JA**, Williams R. Informatics Center for Mouse Genomics: The Dissection of Complex Traits of the Nervous System. *Neuroinformatics*. 1 (4): 327-342, 2003.

RESEARCH/WORK EXPERIENCE **Graduate Student**, Princeton University **September 2004 – June 2009**
Developed methods for the prediction of functionally important sites in proteins using information theory and analysis of protein sequence and structure.

Research Assistant, Network Computing Lab, Columbia University **Summer 2003**
Evaluated the performance of different compression methods in thin-client systems.

Computer Lab Consultant, Columbia University **Sept. 2000 – May 2004**
Solved walk-in lab user problems. Troubleshot hardware and printer problems.

Research Assistant, University of Tennessee, Memphis **Summers 2001, 2002**
Developed the iScope system for real-time, online research telemicroscopy.

Programmer, University of Tennessee, Memphis **Summers 1999, 2000**
Developed computer tools for genetics research lab. Created online atlases of the mouse brain (www.mbl.org).

TEACHING EXPERIENCE **Mentor**, University of California, San Francisco **Spring 2010**
Designed and mentored a first year graduate student's rotation project with our group.

Writing Center Fellow, Princeton University **Fall 2007 – Spring 2009**
Discussed papers—ranging from freshman essays to PhD theses—in weekly one-on-one conferences with students.

Mentor, Princeton University **Summer 2007, Summer 2008**
Mentored undergraduate students on research projects associated with the Summer Programming Experience and Research Experience for Undergraduates programs.

Assistant in Instruction, Princeton University **Spring 2006, Spring 2007**
COS 234 A Quantitative Integrated Introduction to the Natural Sciences: Taught weekly computer science recitation, held office hours, and developed and graded assignments.

HONORS AND AWARDS NIH Quantitative and Computational Biology Program Training Fellowship, 2004 – 2009
Princeton University Wu Graduate Fellowship, 2004 – 2008
Columbia University Oxford Scholar, 2002

REFERENCES Prof. Mona Singh, (mona@cs.princeton.edu), Computer Science, Princeton University.
Prof. Thomas Funkhouser, (funk@cs.princeton.edu), Computer Science, Princeton University.
Prof. Olga Troyanskaya, (ogt@cs.princeton.edu), Computer Science, Princeton University.
Prof. Virginia Zakian, (vazakian@princeton.edu), Molecular Biology, Princeton University.
Prof. Robert Williams, (rwilliam@nb.utmem.edu), Neurogenetics, University of Tennessee, Memphis.