

Arvind S. Rao, PhD

Contact Information	# # ***** ST San Francisco, CA	tel: (###) ### - #### email: *****@*****.com Citizenship: United States of America
Education	The University of Iowa, Iowa City, IA Ph.D., Mathematics Dissertation: “Weak solutions to a Monge-Ampère type equation on Kähler surfaces” Area: Geometric Analysis, Differential Geometry	May 2010
	Georgia Institute of Technology, Atlanta, GA B.S., Electrical Engineering	May 2002
Skills	Programming Languages – C++ (experienced with VXL/VNL, ITK, VTK, and Boost libraries(only spherical harmonic functions)), MATLAB, MAPLE, PYTHON, PostgreSQL, Microsoft SQL, and BASH scripting. Software – gedit, Vim, L ^A T _E X, and Microsoft Office Applications. Experienced with Ubuntu Linux, Max OS, and Windows OS.	
Industry Positions	Data Scientist San Francisco, CA	Riviera Partners mid-February 2013 – Present
	<ul style="list-style-type: none">• Development of candidate scoring methodologies. Write production code to compute and expose scores.• Work with data analysts to derive insights from candidate activity and placement data. Data cleaning, normalization, and modeling.• Helped migrate data science team development environment to AWS.	
	Software Engineer San Francisco, CA	Ark.com October 2012 – January 2013
	<ul style="list-style-type: none">• Planned computer vision products to resolve entities across social networks. Curated a set of images for testing. Implemented histogram computation and comparison in Python OpenCV.• Gained experience using GitHub, participating in the code review process, and generally working on a software development team.• Wrote web crawlers to acquire data from social networks. From which, I learning about web architectures, and how to use proxies to crawl the social web fast.	
Research and Teaching Experiences	Postdoctoral Researcher Philadelphia, PA	University of Pennsylvania Section of Biomedical Image Analysis 2010 – 2012
	<ul style="list-style-type: none">• Conduct research into new statistical measures of 3D brain MRI in order to better classify pathologies of neurodegenerative diseases.• Created a new clinically relevant mathematical contrast measure for diffusion imaging, which outperformed other measures. Statistical analysis was done with this measure to find significantly different brain regions, within a population of patients and normal subjects.	

- Used machine learning to aid assessment of group difference within a population represented by brain connectivity graphs.
- Implemented experiments and methods in C++, MATLAB, MAPLE, and PYTHON.
- Wrote papers describing methods and experimental results in L^AT_EX and MS Word.
- Wrote BASH and PYTHON scripts for interaction with grid engine computers and image processing tasks.

Graduate Teaching Assistant
Iowa City, IA

University of Iowa
2003 – 2009

- Course instructor for Algebra II, during fall semester of 2006.
- Led two discussion sections, and each met biweekly. Wrote and graded quizzes. Also graded homework assignments.
- Assisted students of Engineering Calculus II with Mathematica assignments.
- Provided one-on-one tutoring for students enrolled in University of Iowa mathematics courses ranging from Algebra I to Multivariate Calculus.
- Wrote solutions to homework assignments for Differential Geometry of Curves and Surfaces (Fall 2006, Spring 2008) and Real & Complex Analysis II (Spring 2008).

Fellowships and Service

- Member of the University of Pennsylvania Biomedical Postdoc Community Service Committee, May 2011 - Present.
- NSF–VIGRE Traineeship, Spring Semester 2009.
- University of Iowa Graduate College Summer Fellowship, Summer Semester 2008.
- Volunteered at Iowa high school mathematics competition, hosted by the University of Iowa Mathematics Department, during the spring of 2006 and 2007.

Publications

1. Arvind Rao, “[Weak Solutions to a Monge-Ampère Type Equation on Kähler Surfaces.](#)” PhD Dissertation, University of Iowa, 2010.
2. Arvind Rao, Alex R. Smith, Robert Schultz, Timothy P.L. Roberts, and Ragini Verma, “Peak Geodesic Concentration: A Measure of WM Complexity”, Proceedings of MMBIA 2012.
3. Arvind Rao, Madhura Ingahalikar, Alex R. Smith, Timothy P.L. Roberts, and Ragini Verma, “Statistical Analysis on the GEMS-Manifold of Connectivity Graphs”, Proceedings of MICCAI 2012 (submitted).
4. Arvind Rao, Alex Smith, Robert Schultz, Timothy Roberts, and Ragini Verma, “Geodesic Concentration: A Measure of Diffusion Concentration”, (submitted to Computers in Biomedicine)

Selected Conferences and Presentations

[IEEE Workshop on Mathematical Methods in Biomedical Image Analysis](#)
Breckenridge, CO

January 2012

- Poster presentation of, “Peak Geodesic Concentration: A Measure of WM Complexity”, which is based on a postdoctoral research project of mine.

Geometric Partial Differential Equations
Institute for Advanced Study, Princeton, NJ

February 2009 – May 2009

- While in residence, I wrote my dissertation, presented a paper in an advanced topics PDE courses, and attended seminars.

Differential Geometry Seminar
University of Iowa, Iowa City, IA

September 2006 and 2007

- Two presentations on global estimates for a Monge-Ampère type equation, my dissertation research project.
- Three presentations about the Calabi Conjecture based on lectures notes by Yum-Tong Sui.
- Four presentations based on the John Lee and Thomas Parker exposition of the Yamabe Problem.