Arvind Rao

Software Engineer, Mathematician

A major goal of mine is to develop products that manipulate, simulate, or analyze complex 3D models

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Citizenship: *United States of America*
Visum: *Niederlassungserlaubnis*
Sprachniveau: *Goethe Niveau B1*

HERE Technologies - Geocoding & Search / Lead Software Engineer
2016 - present

Contribute to the development of map data compilers. Research and implemenation of new map data features optimized for geocoding and search use cases.

Riviera Partners / Data Scientist / Engineer
2013 - 2015

Implemented a candidate to job matching system. Applied statistical machine learning techniques to understand the matching system performance. Developed candidate scoring and matching methodologies.

ark.com / Software Engineer Contractor
2012 - 2012

Researched social network entity resolution. Techinques from computer vision were a focus. Wrote scripts for image histogram comparison (used pyOpenCV), and curated a set of images for testing/exploration.

University of Pennsylvania - SBIA / Postdoctoral Researcher
2010 - 2012

Developed a suite of mathematical contrast measures for 3D diffusion MRI to better classify pathologies of neurodegenerative diseases. Published a paper about these measures at the MMBIA 2012 conference.

Projects and Skills

A demo of some 2D computational geometry algorithms (`C++`), a Qt program for visualizing binary search trees (`C++`), a small 3D renderer (`Rust`), a Sudoku solver (`Rust`)

Programming: C++, Scala, Java, Python, Rust, SQL
Frameworks and Libraries: Spark, SciPy/NumPy, Pandas, Protocol Buffers, ITK

Education

Udacity

C++ Nanodegree – *Currently enrolled.* OOP, templates, memory management, concurrency, etc. Implemented a `top` like system monitor, portions of a chatbot, and the A* search algorithm.
Sensor Fusion Nanodegree (Graduation Certificate) – Implemented in C++ obstacle detection from lidar point clouds, registration of lidar point clouds to camera images, object tracking with Kalman filters, and more. My final project submissions.

University of Iowa / Ph.D Mathematics
2003 - 2009

Research in differential geometry and analysis.
Dissertation: Weak solutions to a Monge-Ampère type equation on Kähler surfaces

Georiga Institute of Technology / B.S. Electrical Engineering
1998 - 2002

Publications and Talks

Histogram Equalized Heat Maps from Log Data via Apache Spark at Spark Summit Europe 2017.

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.

Arvind Rao, "Weak Solutions to a Monge-Ampère Type Equation on Kähler Surfaces." PhD Dissertation, University of Iowa, 2010.