

Arvind Rao
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Software Engineer / Mathematician

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

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

Projects and Skills

Education

Publications and Talks

HERE Technologies - Geocoding & Search / Lead Software Engineer

2016 - present

Contribute to the development of map data compilers. Research and implementation 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. Techniques 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.

[Asteroids](#), my version of the classic arcad game (C++), [Qt BST visualizer](#) (C++), [3D renderer](#) (Rust), [Sudoku solver](#) (Rust), [2D computational geometry algorithms](#) (C++)

Programming: C++, Scala, Java, Python, Rust, SQL

Frameworks and Libraries: Spark, SciPy/NumPy, Pandas, [Protocol Buffers](#), [ITK](#)

Udacity

C++ Nanodegree ([Graduation Certificate](#)) – OOP, templates, memory management, concurrency, etc. Implemented my own multithreaded version of [Asteroids](#), the classic arcad game. All my final projects described in more [detail](#).

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. All my final projects described in more [detail](#).

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](#)

Georgi Institute of Technology / B.S. Electrical Engineering

1998 - 2002

[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.