

CARL ANDERSON

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Web taggel.com Personal site
postgresqlforbeginners.com Blog about PostgreSQL
kiddeez.com Parent-focused site launched June 2011

Profile

Self-motivated, independent-thinker scientist / developer with strong coding and analytical skills.

Software engineer and problem solver: Java development, PostgreSQL dev & admin, web services APIs, linux sysadmin, evolutionary computation, Ajax + Django web development, Hadoop / MapReduce / Cascading.

Data analysis: taught statistics as faculty at Georgia Tech, developed sophisticated data analysis system in current role. Ph.D. in mathematical biology from a probability and statistics department.

Algorithm background: projects ranging from modeling social insect behavior, web services to spatial statistics and algorithm development for lossless video and image compression.

Analytical/independent thinker: highly interdisciplinary scientist and developer. Prior research interests in self-organization and complex systems, distributed problem solving and AI, evolutionary computation, and networks and network visualization.

Education

Ph.D. Mathematical Biology	University of Sheffield, UK	1995 - 1998
M.Sc. Biological Computation	University of York, UK	1994 - 1995
B.Sc. Biological Sciences	University of Durham, UK	1990 - 1993

Developer / Scientific programmer skills

Java	My primary language for last 7 years: skills include XML processing, web services, design patterns, JUnit testing, GUIs with realtime graphs and network visualization
SQL	Significant SQL dev and admin experience. Current role is partly a PostgreSQL junior DBA. Blog at postgresqlforbeginners.com
Hadoop	Recently started a large project with Hadoop / MapReduce + Cascading
Scripting	Frequently use python and bash for utility scripts. Just launched kiddeez.com using python Django web framework
R / S+	Long experience with these tools (since 1995) in analysis, statistical modeling and graphics. Have taught R to my graduate students.
APIs	Primarily Apache Axis2 but significant prior experience with REST APIs in PHP. About to start work with Camel + JMS
Web	Ajax web applications, tools & mashups with LAMP (Linux, Apache, MySQL & PHP) backend
Matlab	Developed motion estimation/motion compensation algorithms, image registration, novel edge detection and object detection algorithms. Significant use of image processing toolbox
C / C+	Was my primary language for many years
Evolutionary Computation	Developed sophisticated genetic programming and genetic algorithm libraries

Employment

Senior Software Engineer, San Francisco, CA Nov 2011-present
Currently building out backend infrastructure with PHP and Ruby on Rails.

Scientist III, Archimedes Inc., San Francisco, CA Sept 2007-Nov 2011

- Enhanced productivity of the science team significantly by fully automating the workflow of setting up and running simulations, monitoring progress and running reports when complete.
- Designed, created and maintained a flexible, centralized data analysis and reporting system for analyzing results from our simulation models. Acted as the system's data architect, DBA and linux sysadmin.

- Stopped reinventing-the-wheel productivity loss by getting the science team to standardize on my set of fully QC'd analysis tools, reducing the number of different programming languages used for analysis from 14 to 4.
- Managed several scientists and developers.

Cofounder & Software Engineer, Batchtags.com, Washington, DC **July 2006-Aug 2007**
Full time software engineer developing Ajax and Flex/Actionscript 3.0 interface and XML APIs for Batchtags, which is essentially a personal semantic web.

Full time consultant / developer, Sunlightlabs.com, Washington, DC **Jun 2006-Apr 2007**
Evangelized web2.0 paradigm, provided technical support, and prototyped tools and developed interfaces to support the Sunlight Foundation's work on transparency in government.

VP, Synthetic Intelligence, Qbit, Bethesda, MD **Aug 2005-June 2006**
Developed research program and business plan around synthetic intelligence focusing on core technologies of evolutionary computation, artificial intelligence, and agent based modeling. Developed sophisticated genetic programming library (20,000 lines of code in Java).

Senior research Scientist, Qbit, Bethesda, MD **Feb 2005- Aug 2005**
Developed image, video and XML lossless compression algorithms. These included motion estimation / motion compensation, image registration, and object detection.

Senior Research Scientist, Icosystem, Cambridge, MA **Sep 2003-Feb 2005**
Consulted on a variety projects including evolutionary testing of firemain systems (for Office of Naval Research), simulating aggregate service chaining in web services [agent based modeling], and a portfolio approach to managing one's PageRank resources [lots of Perl & Statistics]. Other projects included evolving Google bombs [genetic algorithms], modeling patient flow through a healthcare system [agent based modeling] and evolutionary graphic design [genetic algorithms].

Anderson Interface Visiting Asst. Prof. in Natural Systems, Georgia Tech **Sep 2002-Sep 2003**
Taught introductory statistics course and developed and taught graduate level course in self-organization. Advised graduate students working in spatial statistics and social insect inspired distributed problem solving.

Postdoctoral researcher, Regensburg University, Germany **May 2000-May 2002**
Developed research program in modeling division of labor and task partitioning in social insects, also taught pattern formation and statistics.

Postdoctoral researcher, Georgia Tech **Mar 2000- May 2000**
Studied parallels of division of labor in insect societies with that of industrial logistics.

Postdoctoral researcher, Duke University **Mar 1999- Mar 2000**
Studied task partitioning in insect societies and social complexity

Postdoctoral researcher, Aarhus University, Denmark **Oct 1998- Feb 1999**
Modeled division of labor in insect societies.

Philip Steinmetz Fellow, Santa Fe Institute, Santa Fe, NM **Jun 1997- Jun 19997**
Modeled division of labor in insect societies.

Publications

35+ peer-reviewed publications in topics ranging from spatial statistics, ant foraging, optimizing truck painting to web services. Full publication list: <http://taggel.com>