Stephen Rudolph

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Objective

- Interest in automated aerospace systems using pattern recognition, computer vision, and machine learning techniques and simulation using visual analytics techniques for full-time position.

Education

Purdue University   **West Lafayette, IN**

- Electrical and Computer Engineering, Masters of Science in ECE
- Emphasis in Artificial Intelligence and Automatic Control
- Graduating: 5/2009   GPA: 3.29/4.0

Arizona State University   **Tempe, AZ**

- Computer Systems Engineering, Bachelors of Science in Engineering
- Minor in Philosophy
- Graduated: 5/2007   GPA: 3.72/4.0

Experience

Purdue University Rendering & Perceptualization Lab   **West Lafayette, IN**
Research Assistant   **10/2007 - Present**

- Visual analytics research for emergency room data using OpenGL, Visual C++, and Qt (C++) focusing on temporal and spatial analysis for detection of disease outbreaks.
- Implemented a map view that allowed for panning and zooming and was capable of displaying shape file data and terrain images downloaded on the fly from an OGC WMS server.
- Conducted a statistical analysis of emergency room visit data to determine and define any recurrent weekly effects on the data in order to account for intra-weekly effects in outbreak detection.
- Researched different data aggregation methods and created one based on graph theory to show clusters of patients in a non-overlapping and visually consistent fashion.

Mars Space Flight Facility   **Tempe, AZ**
Intern   **5/2006 - 8/2006**

- Designed a multithreaded Java app to request OGC WMS image tiles and test server robustness based on a parsed XML capabilities file.
- Modified an existing OGC WMS server code (C++) to provide detailed and accurate error reports.

Apple Computer, Inc.   **Cupertino, CA**
Intern and Subsequently a Part-time Employee   **5/2005 - 3/2006**

- Created and expanded a variety of PHP web-based tools to organize, track, analyze, and visualize OS performance data.
- Re-architected existing infrastructure to allow PPC to Intel-based Mac comparisons.

Skills and Coursework

- C/C++, Python, OpenGL, Objective C, Lisp, Java, PHP, SQL
- OS X, Linux (CLI and GUI), Windows, Xcode, Eclipse, Visual Studio
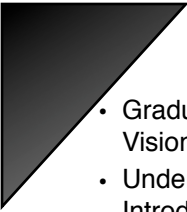- Native English Speaker, Basic Italian, Basic Spanish, Web Development

- Graduate level: Pattern Recognition and Decision-Making Processes, Artificial Intelligence, Computer Vision, Optimization Methods for Systems and Control
- Undergraduate level: System-Level Hardware-Software Co-Design, Introduction to Computer Graphics, Introduction to Artificial Intelligence, Computer Networks

Academic Honors and Activities

- National Merit Scholar, Barrett Honors College Graduate
- HKN Officer (Pledge Trainer), Kiwi project volunteer

Publications

Understanding Syndromic Hotspots - A Visual Analytics Approach

- Ross Maciejewski, Stephen Rudolph, Ryan Hafen, Ahmad Abusalah, Mohamed Yakout, Mourad Ouzzani, William S. Cleveland, Shaun J. Grannis, Michael Wade, David S. Ebert. IEEE Symposium on Visual Analytics Science and Technology (VAST), 2008. (To Appear)

The Day-of-the-Week Effect: A Study Across the Indiana Public Health Emergency Surveillance System

- Ross Maciejewski, Stephen Rudolph, Shaun J. Grannis and David S. Ebert. In the abstracts from the 2008 Conference of the International Society for Disease Surveillance, December 2008. (To Appear)

Contextualizing Hotspots - A Visual Analytics Approach

- Ross Maciejewski, Stephen Rudolph, George Tebbetts, David S. Ebert. Geospatial Visual Analytics Workshop at the GIScience 2008 Conference, Park City, Utah, USA, 23-26 September, 2008. (To Appear)

Undergraduate Thesis: "Analysis of the Fine-Tuning Argument"

- Available at Arizona State's main library and upon request. (Unpublished)