Russell Turner, Ph.D.

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Resume

Summary

Senior computer scientist with experience as a programmer, team manager, software development technical lead, researcher and teacher. Knowledgeable in the areas of bioinformatics visualization, object-oriented design, interactive 2D and 3D graphics, 3D character animation and GUI toolkit design. Strong Java and C/C++ programming experience, with responsibility for full life-cycle design and development of several large Java-based commercial graphics products, including three-tiered applications for visualizing and annotating bioinformatics data. Ph.D. in computer animation, with academic research experience.

Skills

Subjects: Bioinformatics visualization, graphical user-interface programming, object-oriented software design, interactive 2D and 3D graphics, 3D character animation.
Languages: *Java, C, C++, Unix, Pascal, Fortran, Objective-C, Perl, SQL, Eiffel, Basic, APL, Assembler.*
Graphics APIs: *VTK (Visualization Toolkit), JClass JChart 3D, Neomorphic, Swing/Java2D, JavaBeans, OpenInventor, OpenGL, Motif/X11, VRML, NextStep, SunView, DataViews.*
 Development Tools: *Eclipse, Jbuilder5.0, TogetherJ, MagicDraw, Near and Far Designer, Rational Rose, Symantec Cafe, JDK, CVS, NextStep InterfaceBuilder, DataViews, Unix.*

Employment

Senior Computer Scientist, Applied Biosystems, Rockville, Maryland. Currently developing visualization tools for research in comparative genomics and proteomics for the Informatics Research Group headed by Sorin Istrail, reporting to Granger Sutton. (2002-Present)

- **Comparative Genomics Viewer:** Designed and implemented *Atavist*, an interactive Java-based research tool for viewing and analyzing comparative genomic data. Displays multiple genomic axes together with aligned genomic features and syntenic relationships.

- **Comparative Feature Projection Tool:** Designed and implemented *Atalanta*, a Unix tool written in *C++* to project genomic feature coordinates between different genome assemblies of the same or closely related species.

- **LCMS Spectrum Viewer:** Developed prototype tool for viewing liquid chromatography mass spectrometry data in 3D with interactive pan and zoom capabilities. Data is loaded in progressively from disk as user zooms in, allowing large datasets to be viewed on small memory machines.

Senior Computer Scientist, Celera Genomics, Rockville, Maryland. Developed proteomics research visualization tools for the Informatics Research Group headed by Eugene Myers. (2001-2002)

- **Mass Spectrometry Visualization Application:** Responsible for full life-cycle design and development of the *MSMSViewer*, an interactive Java-based 3-tiered application for viewing and annotating tandem mass spectrometry data from Celera's proteomics pipeline.

Visualization Team Head, Celera Genomics, Rockville, Maryland, supervised eight Java software engineers developing and maintaining genome visualization and annotation tools for Celera's human genome assembly project. (1999-2001)

- **Genome Annotation Application:** Technical lead responsible for designing and developing the *Celera Genome Browser*, an interactive Java-based 3-tiered application used by Celera scientists and customers for visualizing and annotating genomic data, including Celera's human genome database.

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Principal Computer Scientist, Global Infotek Incorporated, Vienna, Virginia. Designed and developed Java-based visualization and systems integration software for advanced DARPA research projects, including CPOF (Command Post Of the Future). (1999)

Vice President Research and Development Wigitek Corporation, Amherst, Massachusetts. Developing new graphics software development tools. (1997-1999)

- **Java Dynamic Drawing Editor Product:** Concept, design, major implementation and documentation of *JGraphics*, a Java-based visual software development system for building interactive data-driven dynamic graphics displays with little or no programming.

Assistant Professor, Computer Science and Electrical Engineering Department, University of Maryland Baltimore County. Taught undergraduate and graduate courses in computer science, conducted research in computer animation and interactive 3D graphics, submitted grant proposals, administered grants and participated in departmental committees. (1994-1997)

- **Virtual Reality Toolkit:** Principal Investigator, co-designer and supervisor of research assistants developing *Metis,* a research object-oriented toolkit for implementing 3D interactive simulations, sponsored by an NSF grant.

Principal Software Engineer, Amerinex A. I., Amherst, Massachusetts. (1993-1994)

Computer Animation Consulting, Alias Research, Toronto, Canada. Research and development of computer animation products. (1993)

Computer Graphics Research Assistant, Computer Graphics Laboratory, Swiss Federal Institute of Technology, Lausanne, Switzerland, working for Daniel Thalmann. Conducted research in the fields of computer animation, physics-based modeling, object-oriented graphics and 3D interaction. Published articles, contributed book chapters and presented papers at international conferences and workshops. (1989 - 1993)

- **Deformable Character Animation System:** Designed and implemented *LEMAN* research animation system, which allows deformable 3D layered cartoon characters to be constructed and animated in an interactive, direct-manipulation environment.

- **3D GUI Toolkit:** Member of development team of four research assistants designing and implementing the *Fifth Dimension Toolkit*, a research software library for building animation systems and 3D interactive environments on *Silicon Graphics Iris* and *Next* workstations

Graphics Software Engineer, DataViews Corporation, Amherst, Massachusetts. Member of R&D group developing versions 6.0 and 7.0 of *DataViews* interactive real-time data display graphics package and researching user interface management products. (1987 - 1989)

Education

Ph.D. Computer Science, Swiss Federal Institute of Technology, Lausanne. **Dissertation:** *Interactive Construction and Animation of Layered Elastic Characters.* Daniel Thalmann, advisor. (1993)

Postgraduate Certificate, one-year graduate course in *Scientific Visualization and Graphic Simulation*, Swiss Federal Institute of Technology, Lausanne. (1990)

M.S. Computer Science, University of Massachusetts. **Master's Project:** *A Ray-Traced Image Generator for the Edinburgh Designer System*. Robin Popplestone, advisor. (1987)

B.S. Physics, University of Massachusetts, Amherst. Cum Laude, Dean's List, GPA 3.52, Hasbrouck Scholarship Award. (1984)

Other Interests

Foreign languages (French, German, Chinese), travel