

# Joshua McGee

[joshua@mcgees.org](mailto:joshua@mcgees.org)

---

Creative, enthusiastic engineer successful in developing novel, cutting-edge software in commercial and research environments. Fifteen years' experience in object-oriented programming languages and World-Wide Web technologies. Excellent analytic, mathematical and verbal abilities. Skills include collaboration and communication, ability to work autonomously, and desire to see tasks to completion. Brief summary of technological expertise includes:

**Languages and Technologies:** Core proficiencies in C++/C (including MFC, Windows GUI, and ActiveX technologies), Java, Perl, XML, HTML (including CSS), MySQL, Apache, PHP, Javascript

**Operating Systems:** Windows, Linux (RedHat Certified Technician, Debian/Ubuntu sysadmin), Solaris, SunOS, HP-UX, MS-DOS

**Applications:** Microsoft Visual Studio, Borland JBuilder, Rational Purify, NuMega DevPartner, emacs, numerous others

**Research Interests:** Web technologies, human-computer interaction, data mining

---

## *Professional Experience*

### **LAMP Software Consultant – 2008-Present**

- ✦ Using LAMP (Linux/Apache/MySQL/Perl) technologies, wrote, modified, and maintained web applications and middleware, including a call log auditing system, blogging platforms, and e-commerce sites.
- ✦ Upgraded and administered servers and network configurations.
- ✦ Instructed corporate IT staff.
- ✦ Worked both on- and off-site.

### **Rockwell Scientific (later Teledyne Scientific and Imaging) – Thousand Oaks, CA – 1999-2007**

#### **Member of Technical Staff**

- ✦ Primary developer on Autonomous Collaborative Operations (ACO) unmanned aerial vehicle program. Wrote communication, networking, resource management, and communications management using JAXB XML technologies, as well as event management software, in Java. Developed autopilot interface middleware and bridge software to route planners in C++ under Linux.
- ✦ Using Perl and the GD library on an Apache system, created a battlefield map application allowing a scout in the field to view locations of known friendlies and

enemies on a custom-rendered map with a wireless PDA, and update locations of new threats as they are detected.

- ✦ Developed wearable computer system from commercial and custom hardware.
- ✦ Development team member on the AWARE (Aviation Weather Awareness and Reporting Enhancements) and EWxR (Enhanced Weather Radar) systems under NASA funding. These technologies dramatically improve the amount and quality of information available to commercial pilots, allowing them to avoid hazardous weather conditions and increase the safety of flights. My projects include image processing for storm identification, categorization and tracking; cartographic reprojection of maps; network information systems for dispersal of data; and storm data parsing.
- ✦ Using Perl and Apache technologies, developed and upgraded the Human Resources web application for online employee application and HR-side application management.
- ✦ Co-developed the Head-Motion-Compensated Eye-Tracking Server, allowing a user to interact with a computer by gazing at areas of interest. Sole developer on the Coordinate Space Transform (CST) Server for eye-tracking and other advanced pointing methods – this robust software allows the user to define arbitrary regions of interest in the field of view, transform pointing-device coordinates into an arbitrary coordinate space, and serve these data to network clients.
- ✦ Researched the combination of pointing and speech as a mode of computer interaction. Developed software to conduct formal human trials on the use of pointing, speaking, and combined pointing and speaking in map interaction scenarios, and oversaw this research. Results were presented at the U.S. Army Research Lab Symposium in March 2001.
- ✦ Sole developer of ActiveX-based Portable Global Positioning System (GPS) Control; this software allows applications to determine the user's geographic position by interfacing with a commercial GPS receiver. Assisted in its integration with Mobile Augmented Reality application, allowing a properly-equipped user wearing a head-mounted display to see computer-generated images of unseen physical features (e.g., the outlines of mountain ridges obscured by fog) displayed in the proper location on his or her field of view. I presented the Augmented Reality research at the International Symposium on Wearable Computers in October 2000.
- ✦ Contributed to 3-D image tracking software, including image-processing and visual servo technologies. Implemented Hough Transform for line-extraction in images.
- ✦ Supervised student interns for six successive years.

### ***Corporate Recognition:***

Recognized for gold-level completion status on Autonomous Collaborative Operations project, 2005.

"Recognized for team effort and significant contributions [to] demonstrate an integrated display testbed incorporating multiple levels of display (mini-map, isometric, topographic, and 3D) with stylus, eye-tracking and speech interaction in the ARL Displays FedLab program," September 2001.

"Recognized for his aggressive efforts in picking up new work in Palo Alto's aviation weather programs and aiding the transition of this technology during the relocation of the Palo Alto laboratory," September 2001.

Recognized for “efforts and significant contributions in support of the Boeing objective: ‘Deliver a study report for the Boeing LSSI Thrust on the comparison of COTS and custom solutions for generating digital 3-D model files from physical parts,’” September 2002

### **Rockwell Scientific – Thousand Oaks, CA – 1998-1999** **Flex Force Software Developer**

- ✦ Sole software developer for an olfactory (scent-based) land mine detection system. It was highly rewarding to develop technology that will help clear the world of legacy land mines.
- ✦ Designed and engineered software to perform real-time, double-buffered data acquisition with Rockwell hardware, perform data processing, process signals to detect chemical signatures, log data, and provide real-time feedback to the user.
- ✦ Assisted in design and debugging of firmware for the Rockwell BNA (Board Network Analyzer).
- ✦ Conducted laboratory and field trials of hardware and software.

### **Silerity – Pasadena, CA – 1997-1998** **Intern, then Software Developer**

Acquired by Viewlogic Systems in 1995, Silerity developed the revolutionary PathBlazer software for architectural optimization and placement-based datapath synthesis in the design of computer chips. Upon acquisition of Viewlogic by rival Synopsys in January 1998 the Silerity office was closed.

- ✦ Redesigned user interface for PathBlazer program to support scripting, macros, shell commands, and compatibility with Tool Command Language (TCL).
- ✦ Researched and implemented network data backup system.

### **California Lutheran University – Thousand Oaks, CA – 1997-1998** **World-Wide Web Developer**

California Lutheran University (CLU) is a small, well-regarded liberal arts university in Thousand Oaks, California, midway between Los Angeles and Santa Barbara, noted for small class sizes and close student-faculty contact.

- ✦ Conceived and developed a client-side database system. Due to slow modem speeds at the time, remote server database queries were of limited effectiveness, as each query took a great deal of time to resolve. To perform a database search, the user would download an HTML page with the database information encoded within it. Searches would then be performed locally through Javascript.
- ✦ Working from Adobe Publisher files, created hypertext versions of the CLU undergraduate and graduate course catalogs as well as each issue of the university magazine.
- ✦ Designed and built a student resource page.
- ✦ Designed web graphics with Adobe PhotoShop.

### ***Recognition:***

During my time as campus WWW developer, CLU received the prestigious national CAUSE award for excellence in campus networking.

## ***Side Projects***

- ✦ Maintained and extended blogging platform for personal website <http://mcgees.org> since 2000, including writing WordPress plugins.
- ✦ Wrote numerous web applications, including <http://mcgees.org/magic-land-chooser/> for the trading card game Magic: The Gathering.
- ✦ Contributed code to open-source Tellico collection management system.

## ***Education***

### **Degree**

California Lutheran University (CLU), Thousand Oaks, California, USA  
Bachelor of Science, Mathematics, May 1999 (Honors Graduate)

### **National Test Scores**

#### **Graduate Record Examination (GRE), 1998 (scale is 200 - 800 in ten-point increments)**

- ✦ Verbal: 730 (98th percentile)
- ✦ Quantitative: 780 (95th percentile)
- ✦ Analytical: 780 (97th percentile)

#### **Scholastic Aptitude Test (SAT), 1995 (scale is 200 - 800 in ten-point increments)**

- ✦ Mathematics: 800 (99th+ percentile)
- ✦ Verbal: 790 (99th percentile)

### **Academic Activities**

- ✦ One of three student members of faculty committee to design a degree program in Multimedia.
- ✦ Morning Glory, Award-Winning Campus Literature Magazine (Editorial Staff Member 1995-1996 and 1996-1997, Editor 1997-1998)
- ✦ President of CLU Mathematics Club 1997 - 1998. Member of CLU Physics Club, Philosophy Club, Scarlet Letters (Literary Club). Charter member of CLU chapter, Sigma Tau Delta (International English Honors Society).
- ✦ Theatrical Production, "¿De Donde?" (1995). Improvisational Comedy Group, 1995 - 1997. Choir, 1997.

## Academic Papers and Research

- ✦ Presented "Moore's Law" at American Mathematical Society Section Meeting (1999).
- ✦ Presented "Meta-Patterns in Irrational Numbers" at Southern California Conference on Undergraduate Research (SCCUR) 1997.
- ✦ Presented "Human Cognition and the Generation of Random Numbers: The Results of a Computer-Assisted Experiment" at SCCUR 1996.

## Selected Professional Publications

1. J. McGee, Wm. Marshak, S. Chen, V. Sundareswaran, M. Vassiliou. "Comparing pointing, speech, and combined point-and-speak control inputs," Proceedings ARL Federated Laboratory Symposium, March 21-23, 2001, College Park, Maryland, USA.
2. R. Behringer, C. Tam, J. McGee, V. Sundareswaran, M. Vassiliou. "Two Wearable Testbeds for Augmented Reality: itWARNS and WIMMIS," Proceedings of the International Symposium on Wearable Computers (ISWC 2000), October 16-18, 2000, Atlanta, Georgia, USA.
3. R. Behringer, C. Tam, J. McGee, V. Sundareswaran, M. Vassiliou. "A wearable AR testbed for navigation and control, built solely with COTS hardware," Proceedings of the International Symposium on Augmented Reality (ISAR 2000), October 5-6, 2000, München (Germany).
4. R. Behringer, C. Tam, J. McGee, V. Sundareswaran, M. Vassiliou. "A system for synthetic vision and augmented reality in future flight decks," 2000 SPIE Aerosense, April 24-28, 2000, Orlando, Florida, USA.
5. K. Wang, M. Chan, J. McGee, S. Chen, "Applying Eye Gaze as a Human-Computer Interaction Pointing Device", ARL Advanced Displays Computer Science Handbook, 2001.
6. M. Vassiliou, V. Sundareswaran, S. Chen, R. Behringer, C. Tam, M. Chan, P. Bangayan, J. McGee. "Integrated Multimodal Human-Computer Interface and Augmented Reality for Interactive Display Applications," 2000 SPIE Aerosense, April 24-28, 2000, Orlando, Florida, USA.
7. P. Bangayan, R. Behringer, M. Chan, S. Chen, J. McGee, V. Sundareswaran, C. Tam. "Rockwell Science Center Demonstration of an Expanded Integrated Display Testbed," Proceedings ARL Federated Laboratory Symposium, March 21-23, 2000, College Park, Maryland, USA.

## Languages

Fluent in English. Can read French at an intermediate level.