

### COMPUTER SKILLS

- **Operating systems:** DOS, Windows 3.1 through 7, UNIX/Red Hat/Fedora/Ubuntu, and Macintosh System 7 through 10.
- **Languages:** C/C++, PHP, JavaScript, Perl-CGI, Java, Ada95, Motorola Assembly, Hypertalk. Some C#, Python, and VB.
- **APIs and SDKs:** MFC, WIN32, ActiveX/COM, ATL, WNet, Matrox MIL 7-9, WxWidgets, GCC, QT, ffmpeg, TENA, DirectShow, WM Format SDK, VFW, SFML, GDI, OpenCV.
- **Database Query Languages & Platforms:** Access/DAO, MSQL, MySQL
- **Electronics:** Basic experience with both digital and analog circuitry design. Computer assembly/architecture - Mini/Micro/ATX and PC104. Familiarity with NTSC and HD video formats.
- **Protocols:** Programmed communication modules for hardware devices operating via RS-232, TWAIN, LVDS, CameraLink, Ethernet/TCP, HTTP, MIDI, X10, HDSOI, DVI, KLV, USB, and numerous proprietary military formats.
- **Related Skills:** Professional graphic design, excellent technical writing/documentation abilities, and product development cycle knowledge.

### EDUCATION

- Bachelors Degree in Computer Science, Montana State University Bozeman, May 2002
- High School Diploma, Bozeman High School, June 1996

### RESEARCH AND PROJECTS

- Artificial Intelligence, Robotics, Computer/Machine Vision, Image Processing Algorithms, Voice Synthesis/Recognition, Servo Control Systems
- Learning Algorithms - Bayesian Classifiers, Back Propagation, Competitive Weights, Self Organizing Maps, Learning Vector Quantization, Fuzzy Logic
- Quantum computing and general quantum physics concepts
- Recursive fractal algorithms
- MFC/Windows API user interface programming, DLL plugin implementation
- Raytracing and simulation - Raytracer engine design and implementation
- Video Capture and Compression

### WORK HISTORY

#### 2004-Current. Computer Scientist/Software Engineer NewTec (White Sands Missile Range, NM)

Research and development in technologies pertaining to optical tracking used for analysis of military projectiles and future combat scenarios. Work at NewTec is on a per project basis - with some undertakings lasting a few months and others spanning several years. Among the more interesting accomplishments were tasks specializing in gimbal based target tracking systems via image processing and/or telemetry, video compression algorithms, real-time 3D situational awareness, mathematical modeling and simulation, and extremely low latency video capture/network streaming. Projects are normally approached in teams and continually meet with success as the result of some of the brightest and ambitious individuals in their areas of expertise.

#### 2001-2004. Software Engineer

Southwestern Cotton Ginning Research Lab (Las Cruces, NM)  
Programmed a Windows 2000 interface and image processing framework using Visual Studio 6/7 with MFC/C++, which functions as the front end for a machine vision system that analyzes a video stream of cotton flow during the process of ginning. Data is gathered from the captured images via image processing algorithms/blob analysis and supplied to a trained backward propagating neural network, which makes a conclusion based on amount of trash in the cotton to determine the next stage to carry out in the ginning process. The resulting decision saves time and energy since less wash cycles may be used on cleaner batches. (See <http://clemens.bytehammer.com/papers/CottonEye/> for project specifications.)

#### 2001-Fall 2001. Software Engineer Fuzz Technologies (Bozeman, MT)

PHP and MySQL were combined to create an advanced web-based graphical interface for customer service representatives. The use of regular expressions to parse web pages for pertinent information was a major focus of the operation.

#### 2000-2001. Cofounder/President and Web Developer ByteHammer Media. (Bozeman, MT)

Activities included: money management, customer relations, advertising, web-site design and planning, e-commerce system development, and web programming. Working with graphic editors and writing code in various web languages were part of the day-to-day workload.

## EXTRACURRICULAR ACTIVITIES

- Currently studying Spanish.
- Weightlifting, rugby, running, hiking, mountain biking, rock-climbing, occasional all-night FPS frag fests :-)
- NMSU Rugby Team 2001-2006, El Paso Rugby Team 2007-2009. Las Cruces Mens Rugby 2010-current.
- MSU Track and Field Team 1997-1999
- Bozeman High School track and field 1992-1996
- Various programming projects

## SECURITY CLEARANCE

- 2006+: Secret Security Clearance obtained at WSMR, NM
- 2004-2006: Temporary Security Clearance - WSMR, NM

## WORK HISTORY

### 1999 . Lab Technician

#### [Burns Telecommunications Center. \(Bozeman, MT\)](#)

Responsibilities included keeping the lab's computers and network running smoothly and assisting customers with projects such as slide scanning/printing, laser printing, poster printing, CD-ROM front-end creation, video editing, web-development, and electronic visual presentations. The most common applications employed were PhotoShop/ImageReady, Dreaweaver, PowerPoint, and Director. The various operating systems in use were Windows 98, NT4, Mac OS 8 through 9, and FreeBSD. Instructed individuals and small groups of users in multimedia presentation and creation techniques.

### 1999 . Part-time Web Master

#### [EHHD Dept. at Montana State University. \(Bozeman, MT\)](#)

Implemented a web-based message board for local student teachers. Tutored staff members concerning web-development and maintenance procedures.