

# Martin Michelsen

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## Objective

To be challenged by difficult and interesting problems and given the opportunity to innovate in solving them; to use my current knowledge and experience to build complex and elegant solutions, while continually learning more.

## Skill set

Much of what I know about software development is self-taught. I began learning the C language in the fifth grade, and from there branched out into other languages. I have a strong background in Windows software development ranging from GUI formulation to Direct3D implementation to parsing executable files. I've reverse-engineered systems and protocols including the Nintendo GameCube hardware and API, the encrypted binary protocol for Sega's Phantasy Star Online game, and the PRS compression scheme. I have built a robust server architecture which I've used to create game servers, HTTP and SMTP servers, and proxies.

I am experienced with C/C++, assembly (mostly x86 and PowerPC, and a bit of 680x0), Java, and PHP, and am learning a few other languages, including Haskell and Python. I've built Web sites in PHP, using (X)HTML, CSS, JavaScript, and MySQL databases when necessary. Most of my work is done on Windows, but I get along very well with Mac OS X and Linux/Unix systems also.

My education (both in the classroom and independent learning) has been heavily practical. While I understand theoretical concepts in computer science quite readily, I am still being introduced to the formal foundations of the field.

## Projects

creator of **GCARS-CS**, a game enhancer for Nintendo GameCube games which uses the console's network adapter to bring multiplayer (offline) games online. I wrote routines to interface with the network adapter hardware and read and patch game memory on-the-fly, and developed routines to keep games on distant consoles synchronized, even with long ping times.

creator of the **Aeon** project (also known as **newserv**), a game server for Sega's Phantasy Star Online, a multiplayer online RPG. I built the server's architecture and reverse-engineered much of the game's communication protocols. Community members tested the server, fixed bugs, and helped implement new features.

author of **smtpserv**, an SMTP server supporting message relaying, mailing lists with optional PGP encryption, and simple scripts.

author of **aPress**, a Windows portable executable (PE) compressor.

author of **Windows PPE**, a sandbox for testing suspicious programs.

*Many more of my projects are listed, and many are available for download, at*

*<http://www.fuzziqersoftware.com/projects.php>. Source is available upon request for many of these projects.*

## Education

**California Institute of Technology**, class of 2012 (current sophomore)

B.S. in Computer Science (overall GPA: 3.9; in-major GPA: 4.0)

Math Club member

Club for Computer Science member

## **Employment History**

### **Ukiah Unified School District** (Ukiah, CA)

September 2004 - June 2005

Network and computer administrative assistant

Maintained and upgraded a network of about 600 Windows computers; wrote programs to automate tedious tasks

### **Karl Gulyash Construction** (Potter Valley, CA)

June 2007 - September 2007, July 2009

Construction assistant

Remodeled rooms; framed, insulated and wired walls; cut and installed drywall

### **Ukiah High School** (Ukiah, CA)

September 2007 - June 2008

Tutor in math, physics, and chemistry

### **California Institute of Technology** (Pasadena, CA)

September 2009 - Present

Undergraduate teaching assistant for computer science courses