

# Cindy Grall

Senior Software Consultant

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**Quandary Peak Research**

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## Education

**Master of Science in Computer Science** | 1991

University of Southern California, Los Angeles, California

**Bachelor of Science in Computer Science and Engineering** | 1987

Milwaukee School of Engineering, Milwaukee, Wisconsin

## Employment

### Quandary Peak Research

**Senior Software Consultant** | Los Angeles, CA | Jan 2023–Present

- Analyzing source code to opine on various software characteristics such as scalability, interoperability, security, and extensibility.
- Evaluating the software architecture of various products and assessing overall characteristics, strengths and weaknesses.

### Data Lantern Inc

**Co-Founder and CTO** | Newark, CA | Aug 2014–Dec 2022

- Developed and maintained a web server to service REST requests from mobile device apps and browser requests from users. The server handles user login, addition of user specified data, and requests for the stored data. The system is a basic LAMP server using Ubuntu, Apache, MySQL, MongoDB, and the Laravel PHP framework.

### Yahoo

**Principal Software Development Engineer** | Sunnyvale, CA | May 2008–Dec 2012

- Designed, developed and supported Javascript components to manage a user's applications in the Yahoo Mail browser code. The components supported 3rd party applications running in Yahoo Mail, known as Openmail.
- Responsible for design, development and operation of web servers to provide the resources required by the Openmail applications. The system handled up to 14,000 requests per second from Yahoo Mail servers and browsers worldwide. Design incorporated a MySQL database for permanent data storage and a distributed cache for delivering data to all the web servers worldwide. Application or configuration changes were available within 100's of milliseconds to any web server. Tasks included:
  - Developed PHP and scripts for web service requests for Openmail application assets, OAuth requests, application updates from developers, and administrative operations.
  - Contributed to team effort to improve performance of existing web request dispatching design and implementation. The average response time for requests dropped 15%.
  - Involved in deployment of updates, configuration and monitoring of the web servers and the applications.

- Following Agile principles, incorporated continuous integration for development by using team member code reviews, extensive unit testing (>80% code coverage), automatic builds, automatic performance testing and automatic deployment to a beta system.
- Collaborated with the service team to incorporate instrumentation for monitoring of the web servers and individual web service requests.

## **Symantec**

**Principal Software Engineer** | Mountain View, CA | Sept 2006–Apr 2008

- Responsible for design, development, and maintenance of components of the Symantec Database Security (SDS) product. SDS sniffed database traffic from the network to perform security analysis and logging. The SDS product was an appliance application running on Redhat Linux. Tasks included:
  - Added new features, fixed defects, and improved implementation of components written in C++. The components processed database operations to perform security analysis, pattern recognition, logging, and event generation based on an administrator defined policy.
  - Updated and maintained the scripts and components used for product installation, daily operation, administrator management, and upgrade.
  - Leveraged prior knowledge of TCP/IP protocols to update and maintain the network sniffer component written in C.
  - Worked on performance analysis and profiling (e.g., with Valgrind) to find ways to increase performance.
  - Managed CM builds and the product build environment.

## **Motorola| Rohnert Park, CA**

**Senior Staff Software Engineer** | July 2005–Apr 2006

- Responsible for development of components of the Element Management System (EMS) for the Broadband Digital Terminal (BDT) product. Quickly applied my knowledge of programming, multi-threaded processes and embedded systems to support development despite no prior knowledge of the telecommunication industry systems, protocols, and language. Tasks included:
  - Responsible for the TL-1 interface program development, which was a multi-threaded process written in C running on Solaris. Added support for new hardware components, fixed defects, and improved implementation.
  - Responsible for the SNMP agent development.
  - Participated in design reviews and performed the key generation and management process for the encryption capability being added between EMS components and customer premises equipment.

## **Symantec**

**Contractor** | Redwood City, CA | Dec 2004–Mar 2005

- Designed and implemented a tool to convert Snort intrusion detection signatures into Symantec's Network Security Signature Language. The tool was written in Bison, Flex, and C as a command line program to run on Linux and Win32 platforms.

## **Cosine Communications, Inc.**

**Senior Engineer II** | Redwood City, CA | Sept 2000–Jun 2003

- Designed, implemented, and maintained a Unix-style socket library in the IP Network OS (IPNOS). The library was designed for multi-threaded use in an embedded environment.

- Redesigned, improved, and maintained the port of the Gauntlet firewall to IPNOS. Rewrote large portions of the code to take best advantage of the asynchronous, I/O driven embedded environment. Improved the performance, quality, and stability of the code significantly.

## **NAI Labs at Network Associates**

**Senior Computer Scientist** | Los Angeles, CA | Apr 1998–Aug 2000

- Designed and developed a library that implemented the Open PGP Message Format as defined in RFC 2440.
- Implemented components for firewall products that used the PGP sdk encryption library.
- Transitioned research prototypes for use in commercial products. Prototypes included an ASN.1 compiler, and a library used for creation and manipulation of X.509 certificates, CRLs, and certificate requests.
- Performed security review of an application running on a smartcard.
- Supported the FIPS 140-1 evaluation of the PGP sdk library.

## **Trusted Information Systems**

**Senior Computer Engineer** | Los Angeles, CA | Oct 1993–Apr 1998

- Developed Gauntlet application gateway firewall components and proxies for UNIX and Solaris platforms. Analyzed TCP/IP protocols for security issues when supported by a firewall. Added remote management support to the firewall using SNMP. Investigated new approaches to proxy design including threading for the Unix based product. Developed support for validating X.509 certificates in the firewall. Performed firewall installations at customer sites. Performed customer support.
- Provided trusted engineering support for the development of a trusted avionics computer system. Ensured security requirements were satisfied during the design phase, wrote design documentation, and participated in code reviews.

## **The Aerospace Corporation**

**Member of Technical Staff** | El Segundo, CA | July 1987–Oct 1993

- Evaluated computer systems, including network and database systems, against the Trusted Computer System Evaluation Criteria (TCSEC). Assisted in accreditation of Air Force computer facilities.

## **Litigation Consulting**

- **Alyssa West v. Apple, Inc** | Aug 2024–Present  
Jurisdiction: State of CA, County of Santa Clara  
Case Number: 22-cv-408209  
Counsel: Migliaccio & Rathod LLP, Bursor & Fisher, P.A.  
Nature of Suit: Class Action
- **USA v. Hytera Communications Corporation, Ltd et al.** | Apr 2024–Present  
Jurisdiction: US District Court, Northern District of Illinois  
Case Number: 1:20-CR-00688  
Counsel: U.S. Attorney's Office Northern District of Illinois  
Nature of Suit: Criminal, Trade Secret
- **Security First Innovations, LLC v. Google LLC** | Sept 2023–Present  
Jurisdiction: US District Court Eastern District of Virginia Alexandria Division  
Case Number 2-23-cv-00097-EWH-RJK  
Counsel: Sullivan & Cromwell LLP  
Nature of Suit: Patent

• **Nantworks, LLC, and Nant Holdings IP, LLC v. Niantic, Inc.** | Aug 2023–Present

Jurisdiction: US District Court Northern District of California

Case Number: 3:20-cv-06262

Nature of Suit: Patent

Counsel: Sullivan Blackburn Pratt LLP

## Skills

Embedded system design and implementation, multi-threaded design.

**Programs:** PHP, Javascript, C, C++, threading, shell programming, ASN.1, BER/DER, Bison, Flex

**TCP/IP protocols:** Telnet, FTP, HTTP, UDP, TCP, SNMP, DNS, routing, IPSEC,ISAKMP/Oakley

**UNIX:** sockets internals, network programming, Solaris, Linux, Redhat, Ubuntu

**Firewalls:** installation, use, design, development

**Digital Signature applications:** OpenPGP, PKCS, X.509, PKIX, PGP sdk, RSAREf, Java JCA/JCE, BSAFE, BCERT

**Agile:** scrum teams, continuous integration, unit testing

**Experience:** Perforce, Valgrind, Perl, TL-1, Visual Studio, ClearCase, ClearQuest, SNMP Research Toolkit, Redhat RPM tools, MySQL, OAuth, Apache, Siege, Charles, Fiddler, Hudson/Jenkins, Subversion, Git, Laravel, MongoDB, JSON