JUSTIN D. PETTIT

jpettit at cs.stanford.edu http://www.stanford.edu/~jpettit

Professional Experience:

6/06 to Present **Research Assistant/Head Teaching Assistant**
Stanford University, Stanford, California
Advised by Nick McKeown, David Mazières, Martin Casado, and Michael Freedman
Involved in design and implementation of Ethane—a security architecture for enterprise networks. Ported Ethane to embedded wireless platforms. Wrote code to interface with hardware version of Ethane. Implemented Ethane data path in kernel space to achieve full-speed throughput of 1Gbps wired and 54Mbps wireless connections.

Head teaching assistant for 2007 CS244a: Introduction to Computer Networks.

9/01 to 1/06 **Senior Software Development Engineer**
McAfee, Inc./IntruVert Networks, San Jose, California
IntruVert Networks was acquired by McAfee, Inc.
Helped bring IntruShield, a multi-gigabit intrusion prevention system, to market. Designed and implemented software to detect and prevent attacks in real-time that are encrypted through SSL tunnels without being a termination point—the first in the industry. Designed and implemented cryptographic libraries to provide a consistent non-blocking interface to different algorithms that worked with both software implementations and different hardware accelerators. Designed and implemented a library to arbitrarily modify the content of packets in flight. Designed and implemented components to detect remote reconnaissance attempts, including port scans, host sweeps, brute-force attacks and OS fingerprinting. Software was written in C to run across multiple MIPS processors concurrently on VxWorks, a real-time operating system, and Linux. Closely involved in bringing up all versions of hardware.

1/00 to 9/01 **Co-Founder, Senior Software Architect**
Psionic Software, Austin, Texas
Psionic Software was acquired by Cisco Systems.
Lead design and implementation of a host-based intrusion detection system that runs on Linux, Solaris, OpenBSD, and Windows. Built a multi-threaded, object-oriented event handler that formed the core of the system. Built many of the intrusion detection modules that plugged into the system architecture, including port scan detection, log file monitoring, and login anomaly detection.

3/98 to 1/00 **Team Lead – Signature and Exploit Development Group**
Cisco Systems, Austin, Texas
Project leader of team to develop new signatures in C++ for Cisco's intrusion detection system and new exploits in Python for Cisco's security auditing tool. Researched new vulnerabilities to add to both products, and coordinated with Marketing to prioritize requirements for both products. Set schedules and ensured others in team met deadlines. Built regression and testing tools to maintain functionality between product builds. Involved in the initial design and implementation of the security auditing tool.

4/96 to 3/98 **Network Security Engineer**
WheelGroup Corporation, San Antonio, Texas
WheelGroup was acquired by Cisco Systems.
A member of the Security Posture Assessment (SPA) team, whose purpose was to uncover vulnerabilities in corporate clients' networks, including many of the Fortune 500. These audits involved breaking into computers both from the Internet and the

clients' internal networks. Recommended to clients countermeasures in the form of policies, procedures, and software/hardware technology. Researched and developed new security tools and vulnerability analysis techniques.

Areas of Work Experience:

Information Security, Intrusion Prevention Systems (IPS), Host- and Network-Based Intrusion Detection Systems (IDS), Network Access Control (NAC), Cryptography, Vulnerability Assessment, Network Programming, Systems Programming, Embedded Programming, Exploit Programming, Network Administration, System Administration, Systems Integration

Areas of Expertise:

Languages C, C++, Python, Objective-C, Assembly (MIPS, Sparc, and 80x86), Java, Visual Basic, PERL, SQL, BASIC, Bourne Shell, C Shell, Korn Shell, TCL, Expect

Network Protocols IP, IPSec, IPv6, TCP, UDP, ICMP, ICMPv6, ARP, RARP, NetBIOS, IPX/SPX, NetBEUI, SSLv2, SSLv3/TLS, Telnet, FTP, SMTP, DNS, TFTP, POP-2, POP-3, IMAP, HTTP, Kerberos, RPC, Finger, X, SNMP, NNTP, NFS, NIS, Rlogin, RSH, Rexec, RIP, NTP, SNTP, Syslog

Platforms VxWorks, Linux, Solaris, Windows NT/XP, Mac OS X, Windows 95/98, OpenBSD, SunOS, NeXTStep, DOS, Windows 3.x, Novell, FreeBSD, VMS, OS/2, AIX, AS/400

Hardware Cavium Nitrox Lite CN1010 and Broadcom BCM5820, BCM5821, and BCM5823 cryptographic accelerators

Publications and Patent:

"Ethane: Taking Control of the Enterprise," M. Casado, M. J. Freedman, J. Pettit, J. Luo, N. McKeown and S. Shenker, *Proc. ACM SIGCOMM 2007*

"Prototyping Fast, Simple, Secure Switches for Ethane," J. Luo, J. Pettit, M. Casado, J. Lockwood, N. McKeown, *IEEE Hot Interconnects 2007*

US Patent # 7058968 (2006), "Computer Security and Management System"

Education:

Stanford University, Stanford, California
Master of Science in Computer Science, expected completion in December 2007.

Santa Clara University, Santa Clara, California
Bachelor of Science in Commerce, Operations and Management Information Systems, December 1999.