

Jesus Molina

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Research Interests

Trusted Computing, Intrusion Detection, Embedded Systems

Summary

- Member of the Trusted Computing Working Groups
- Experience with advanced Intrusion Detection Systems
- Knowledge in all facets of computer security, including protocols, TCG, IPSEC, WEP, 802.1x, Cryptography (DES, AES, RSA), E-commerce, Networking, Firewalls, PKI, VPN, Intrusion detection Systems (Tripwire, Snort)
- Experience with embedded systems and Linux Kernel programming
- Experience with wireless protocols and wireless security
- Experience implementing secure protocols and performing secure auditing for protocols and software
- Highly productive in teams and individual projects, strong research skills and proven problem solving and resolution skills, proven leadership capabilities
- Cowriter of five patents pending approval

Experience

Fujitsu Laboratories of America

R&D Engineer

College Park, MD

September 2002 – Present

- Performed a security audit in a mobile commerce protocol and mobile commerce software
- Developed two patent pending secure mobile commerce technologies
- Developed a wireless e-commerce device, including Kernel (Arm-linux), user space software, wireless connection and transaction protocols
- Developed a patent pending mobile voting protocol
- Patched ARM-linux Kernel, created a keyboard kernel module, support for a LCD display and created patches for the Spectrum-24 wireless card to improve AP-scanning
- Developed the user-interface using C and CGI, and created client/server application used by the e-commerce device, audited a secure e-commerce protocol, developed a voting application using new crypto-primitives

Maryland Information Systems Security Lab

Faculty Research Assistant

College Park, MD

January 2001 – Present

- Worked in the use of embedded systems as Intrusion Detection Systems, created Linux drivers for different devices, performed research in wireless security
- Create a secure embedded filesystem integrity checker and a Patent Pending embedded memory integrity checker (Komoku and Copilot)

Skills

Programming: C, C++, Perl, Java, J2me, C#, Assembly, Shell scripting, client/server programming, Linux Kernel programming

Security: Intrusion Detection Systems (Snort, Tripwire, ALVA, sniffers, etc), exploits, Security software (SSL), Network intrusion test methods (Nessus, nmap, ncat, Stealth, Saint), Cryptography (DES, TripleDES, SKIP, RSA, MAC, etc), Key Management(PKI, Kerberos)

Operating Systems: Linux, Embedded Linux, VxWorks, [Open/Net]BSD, Windows 9x/NT/2000/XP

Non-technical skills: Spanish and Catalan (Native), english(fluent), German, Chinese, Arabic, Swahili (Beginner), project management, team worker, leadership

Education

University of Maryland at College Park, College Park MD

Phd. in Electrical Engineering (Candidacy)

University of Maryland at College Park, College Park MD

Master in Computer Engineering with Thesis, December 2001 GPA: 3.5

Universidad Politecnica de Catalunya, Barcelona, Spain

Bachelor's in Electrical Engineering, July 1999

Publications

Yannis Labrou, Jonathan Agre, Lusheng Ji, Jesus Molina, Wei-lun Chen: *Wireless Wallet*. To be presented at Mobiquitous 2004

Nick L. Petroni, Jesus Molina, Timothy Fraser, William A. Arbaugh: *Copilot: A Coprocessor Based Runtime Integrity Monitor*. To be presented at 13th Usenix Security Symposium 2004

Jesus Molina, William A. Arbaugh: *Using Independent Auditors as Intrusion Detection Systems*. ICICS 2002: 291-302, December 9-12, 2002 Springer 2002, ISBN 3-540-00164-6

Jesus Molina: *Using Independent Auditors for Intrusion Detection Systems*. Master's Thesis, July 2001

Jesus Molina: *Hardware Implementation of an Authentication Protocol Using Kerberos*. Senior's Thesis, July 2000

Patent Applications

Wireless Wallet.

Inventors: Yannis Labrou, Lusheng Ji, Jonathan Agre, Jesus Molina Terriza, Wei-lun Chen.

Opinion registering application for a universal pervasive transaction framework.

Inventors: Yannis Labrou, Lusheng Ji, Jonathan Agre, Jesus Molina Terriza

A Method for Monitoring the Integrity of System Memory.

Inventors: Nick L. Petroni Jr., Timothy Fraser, Jesus Molina, and William A. Arbaugh