

Adam J. Roche, Ph.D.

TECHNICAL INTERESTS	Network Security, Distributed Processing, Information Privacy
EDUCATION	<p>B.S., Computer Engineering, Summa Cum Laude, May 1998 University of Central Florida, Orlando, FL</p> <p>M.S., Computer Engineering, August 1999 University of Central Florida, Orlando, FL Thesis: <i>Minimizing Software Testing Time Without Degrading Reliability</i></p> <p>Ph.D., Computer Engineering, August 2004 University of Central Florida, Orlando, FL Dissertation: <i>Mitigation of Network Tampering Using Dynamic Dispatch of Mobile Agents</i></p>
PROFESSIONAL EXPERIENCE	<p><i>Research Assistant</i> University of Central Florida <i>Department of Electrical and Computer Engineering</i> Orlando, Florida 2001 – 2003 Identified weaknesses in existing network intrusion detection systems. Enumerated insider-risk exposures to computer system resources. Defined tampering mode categories of these exposures. Constructed a mobile agent framework to verify file integrity in the presence of insider tampering. Developed test cases for each tampering mode.</p> <p><i>Visiting Lecturer</i> University of Central Florida <i>Department of Electrical and Computer Engineering</i> Orlando, Florida 1999 – 2000 Instructor of record for two courses. Taught two sections of EEL3801 in Fall 1999 and one section of each EEL3801 and EEL4882 in Spring 2000.</p> <ul style="list-style-type: none">• EEL3801: Introduction to Computer Engineering with Laboratory<ul style="list-style-type: none">– C, Assembly Language, Program Design• EEL4882: Engineering Systems Software<ul style="list-style-type: none">– Operating Systems Concepts, Process Scheduling, Resource Management <p><i>Research Assistant</i> University of Central Florida <i>Department of Electrical and Computer Engineering</i> Orlando, Florida 1998 – 1999 Developed statistically-based testing algorithms for software systems described as Markov chains. The algorithms dynamically update state transition probabilities such that high complexity and fault prone states are tested more often than other states in order to reduce testing time and increases software reliability.</p> <p><i>Unix System Administrator</i> University of Central Florida <i>Department of Electrical and Computer Engineering</i> Orlando, Florida 1996 – 1998</p>

Administered the Electrical and Computer Engineering Unix lab consisting of 12 Solaris workstations. Tasks include installing hardware, applying software patches, and maintaining email, HTTP, and NIS+ servers.

Consultant

**I-Math and Associates
Orlando, Florida
1998**

Upgraded and patched Solaris system software. Designed a company-wide email parser to fetch and distribute email implemented in Perl.

*Engineering Support
Department of Electrical and Computer
Engineering*

**University of Central Florida
Orlando, Florida**

1998 – 2000

Provided Unix server support for faculty and engineering computer support personnel. Installed new hardware and patched system software. Administered email and HTTP servers.

PUBLICATIONS

Ronald F. DeMara and Adam J. Roche, "Mitigation of Network Tampering Using Dynamic Dispatch of Mobile Agents," *Computers & Security*, vol. 23, no. 1, pp. 31 – 42, February 2004.

Adam J. Roche and Ronald F. DeMara, "CONFIDANT: Collaborative Object Notification Framework for Insider Defense using Autonomous Network Transactions," submitted to the *Journal of Autonomous Agents and Multi-Agent Systems*.

Adam J. Roche and Ronald F. DeMara, "Trusted Detection of Unauthorized Filesystem Modifications to Combat Insider Tampering," submitted to *IEEE Transactions on Dependable and Secure Computing*.

G. Wang, R. F. DeMara, A. J. Roche, "Mobility-Enabled File Integrity Analyzer For Networked Environments," submitted to *The Second International Symposium on Risk Management and Cyber-Informatics (RMCI '05)*, Orlando, FL, July 10-13, 2005.

TEACHING
INTERESTS

Computer Networking, Distributed Processing, Operating Systems, Computer Security, Data Structures

RESEARCH
INTERESTS

Hardware-level Encryption, Embedded Systems, Mobile Agents for Network Security

HONORS AND
AWARDS

- Lucent Florida Universities Fellowship recipient
- Kersten Fellowship Award recipient
- Dean's List: 1994 – 1998