Andrew Maxwell White

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RESEARCH INTERESTS

- network and distributed system security
- encrypted traffic analysis
- privacy and anonymity
- machine learning

EDUCATION

University of North Carolina at Chapel Hill, Chapel Hill, North Carolina — Fall 2008 - Present
- M.S. Computer Science, May 2011
- Admitted to doctoral program, December 2009

University of Richmond, Richmond, Virginia — Fall 2004 - Spring 2008
- B.S. Computer Science with Honors, May 2008
- B.A. Mathematics, May 2008

University of St Andrews, St Andrews, Scotland, United Kingdom — Fall 2006

AWARDS

Research Community
- Best Paper Award, IEEE Symposium on Security and Privacy, 2011 [3]
- CSAW AT&T Best Applied Security Paper Award, 2011 [3]

University of Richmond, Richmond, Virginia
- Mary Church Kent and Joseph F. Kent Computer Science Prize, 2008
- Outstanding Student in Computer Science Award, 2008
- Pi Mu Epsilon Mathematics Honor Society, 2008
- Phi Beta Delta International Scholar Honor Society, 2008
- Summer Undergraduate Research Fellowship, 2005
- Mary Richardson Scholarship, 2004-2008

MANUSCRIPTS AND PUBLICATIONS

[1] A. M. White, S. Krishnan, M. Bailey, P. Porras, and F. Monrose, *Real-time winnowing of opaque traffic in 16 bytes or less: techniques and empirical analyses*, submitted for review.

[2] R. Raguram, A. M. White, D. Goswami, F. Monrose, and J.-M. Frahm, "iSpy: Automatic reconstruction of typed input from compromising reflections," in *Proceedings of the 18th ACM Conference on Computer and Communications Security*, Oct. 2011.

[3] A. M. White, A. R. Matthews, K. Z. Snow, and F. Monrose, "Phonotactic reconstruction of encrypted VoIP conversations: Hookt on fon-iks," in *Proceedings of the 32nd IEEE Symposium on Security and Privacy*, May 2011.

[4] S. E. Coull, A. M. White, T.-F. Yen, F. Monrose, and M. K. Reiter, "Understanding domain registration abuses," in *Proceedings of the 25th IFIP International Information Security Conference*, Sep. 2010.

[5] A. M. White, *Securing distributed volunteer computations: Investigating techniques for effective and efficient task assignment*, University of Richmond Honors Thesis, 2008.

SERVICE

Research Community
- Proceedings Chair, *Network and Distributed Systems Security Symposium (NDSS)* — 2011, 2012
- External Reviewer
  - *ACM Conference on Computer and Communications Security (CCS)* — 2010, 2011
  - *USENIX Workshop on Large-scale Exploits and Emergent Threats (LEET)* — 2011
  - *Digital Forensics Research Conference (DFRWS)* — 2012

Department of Computer Science, University of North Carolina at Chapel Hill
- Student Member, *Graduate Curriculum and Planning Committee (CAPCOM)* — Spring 2011
- Student Member, *Teaching Tune-Up Committee (TTU)* — Spring 2011, 2012

CONFERENCE PRESENTATIONS, INVITED TALKS, AND GUEST LECTURES

◇ *Guest Lectures*

· Introduction to Computer Security (Fabian Monrose) April 2012
University of North Carolina at Chapel Hill
  · Anonymous Routing and Browsing
  · Side Channels

◇ *Hookt on Foniks: Phonotactic Reconstruction of Encrypted VoIP Conversations*

· Invited Talk (Hosted by Prof. Barry Lawson) November 2011
University of Richmond Math & Computer Science Department Colloquium

· Conference Presentation May 2011
IEEE Symposium on Security & Privacy

RESEARCH EXPERIENCE

SRI International, Menlo Park, California

◇ *Summer Research Assistant* Summer 2010
Vinod Yegneswaran and Phil Porras
- · Investigated fast methods for identifying encrypted traffic
- · Analyzed real-world encrypted botnet command-and-control traffic; explored methods for detecting encrypted C&C traffic

University of North Carolina, Chapel Hill, North Carolina

◇ *Research Assistant* Fall 2008 - Present
Prof. Fabian Monrose
- · Designed and analyzed multiple techniques for fast identification of *opaque*, i.e., compressed or encrypted, network traffic; evaluated techniques using the Bro and Snort intrusion detection systems on two high-speed campus networks [1]
- · Explored extent to which automated techniques can reconstruct typed input from compromising reflections captured by commodity video cameras [2]
- · Investigated severity of information leaks in encrypted VoIP conversations; designed and implemented an extensible object-oriented platform for sequence classification, including an implementation of profile hidden Markov models and other machine learning algorithms [3]
- · Analyzed domain-name registrations to assess extent of speculation, tasting and front-running; designed and implemented a distributed system for measuring the prevalence of front-running [4]

University of Richmond, Richmond, Virginia

◇ *Honors Student* Fall 2007 - Spring 2008
Prof. Barry Lawson
- · Investigated integrity assurance for distributed volunteer computations; utilized genetic algorithms to find optimal redundancy strategies for task assignment; explored various network topologies [5]
- · Analyzed data from real-world distributed volunteer computations to discover usage trends

◇ *Independent Study* Fall 2007 - Spring 2008
Prof. Arthur Charlesworth
- · Explored methods for automated solving of logic puzzles; designed and implemented forward-chaining expert system framework
- · Investigated core artifcial-intelligence concepts such as A* search, BFS, DFS, iterative deepening, and forward/backward chaining

◇ *Undergraduate Research Assistant* Fall 2005, Summers 2006-2008
Profs. Barry Lawson and Doug Szajda
- · Analyzed and developed methods for ensuring computation integrity in distributed volunteer computing platforms
- · Investigated the use of machine learning techniques to detect malicious behavior by participants in distributed volunteer computations
- · Designed and implemented prototype applications for a campus-wide volunteer distributed computing initiative; prepared, tested, and administered server and 5-10 clients, including Ubuntu Linux, Mac OSX, Windows XP

RESEARCH EXPERIENCE (CONTINUED)

University of Richmond, Richmond, Virginia

◇ *Summer Undergraduate Research Fellow* — Summer 2005
Profs. Barry Lawson and Doug Szajda

· Explored application of clustering, self-organizing maps, and similar techniques to securing distributed volunteer computing platforms

COURSEWORK

· Machine Learning Techniques in Image Analysis
· Applied Cryptography and Network Security
· Data Mining
· Advanced Topics in Security

TEACHING AND WORK EXPERIENCE

Technology Learning Center, University of Richmond, Richmond, Virginia

Instructional Technology Consultant — May 2006 - May 2008
◇ *Instructional Technology Associate* — February 2006 - May 2006
Instructional Technology Assistant — August 2005 - February 2006

· Instructed and assisted faculty, staff and students with projects incorporating audio, video, print and web media for classroom and research use
· Designed and implemented web-based computer lab management, scheduling and checkout system

Seventy-Two DPI Web Design, Asheville, North Carolina

◇ *Web Design Intern* — Summer 2004

· Designed multiple HTML/CSS websites and templates

goasheville.com, Asheville, North Carolina

◇ *Web Development Intern* — Summer 2004

· Designed and implemented new content management system