

Michael K. Mabey

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EDUCATION

PhD Computer Science — Information Assurance (expected) May 2017
Arizona State University Tempe, AZ
Research Topics: Email forensics, Chrome OS forensics, Collaborative forensics

M.S. Computer Science — Information Assurance Aug 2011
Arizona State University Tempe, AZ
Committee: Gail-Joon Ahn (Chair), Stephen S. Yau, Dijiang Huang
Thesis: Collaborative Digital Forensics: Architecture, Mechanisms, and Case Study

In order to catch the smartest criminals in the world, digital forensic examiners need a means of collaborating and sharing information that is not prohibitively difficult to use and that complies with standard operating procedures and the rules of evidence. In this work I present the design and implementation of the Collaborative Forensic Framework (CUFF) which is a cloud-based forensic analysis environment that facilitates collaboration among examiners and their trusted colleagues. CUFF makes a positive impact on forensic examiners' efficiency by helping them leverage their network of subject matter experts while also tapping into the scalability and power of the cloud.

B.S. Computer Science — Information Systems May 2009
Utah State University Logan, UT

EXPERIENCE SUMMARY

Research Assistant Nov 2009 – Present
Security Engineering for Future Computing (SEFCOM) Lab, ASU Tempe, AZ

Teaching Assistant Aug 2010 – Dec 2015
Arizona State University Tempe, AZ

Teaching Assistant (Instructor of Record) Aug 2011 – Dec 2014
Arizona State University Tempe, AZ

Summer Intern Jul 2015 – Sep 2015
Arizona Cyber Threat Response Alliance (ACTRA) Phoenix, AZ

Student Trainee Jun 2013 – Aug 2013, Jun 2014 – Aug 2014
US Army Fort Meade, MD

Graduate Student Summer Intern May 2011 – Jul 2011
Sandia National Laboratories Albuquerque, NM

Graduate Student Recruitment Specialist/Webmaster Jul 2006 – Aug 2009
Electrical & Computer Engineering Department USU Logan, UT

HONORS AND AWARDS

- DoD Information Assurance Scholarship Program (IASP) Recipient (4 years) 2012 – 2016
- Inducted into Eta Kappa Nu (HKN) Engineering Honors Society Nov 2010
- Eagle Scout, Boy Scouts of America 2002

RESEARCH INTERESTS

- Digital Forensics
 - Web and Email Forensics
 - Forensics on Non-Traditional Devices
- Cyber Security
 - Threat Intelligence Sharing
 - Web Security

RESEARCH EXPERIENCE

Research Assistant

Nov 2009 – Present

Security Engineering for Future Computing (SEFCOM) Lab [↗](#), ASU

Tempe, AZ

Lab Directors: Gail-Joon Ahn, Adam Doupé

- Projects:
 - Researched forensic techniques for **Chrome OS/Chromium OS** by creating tools in **Python** and using **libvirt** to interface with a **KVM/QEMU** hypervisor. (In progress)
Publications: [P1]
 - Developed a web email forensic acquisition approach that reestablishes persistent cookie sessions stored by a browser, and automated the process using **Python** and **Selenium**.
Publications: [C1]
 - Designed and implemented the core components of a modular, highly scalable, collaboration-centric digital forensic framework built on the **OpenStack** cloud architecture. Functions of the components included distributed job scheduling, storage management, and concise evidence representation and transmission.
Publications: [C3], [J2], [P3]
- Sponsors
 - Department of Energy
 - National Science Foundation

PUBLICATIONS

Peer-Reviewed Conference Proceedings

- [C1] Justin Paglierani, **Mike Mabey**, and Gail-Joon Ahn. “Towards Comprehensive and Collaborative Forensics on Email Evidence”. In: *Collaborative Computing: Networking, Applications and Worksharing (Collaboratecom), 2013 9th International Conference on*. October 2013, pp. 11–20.
- [C2] Wonkyu Han, **Mike Mabey**, and Gail-Joon Ahn. “Simulation-Based Validation for Smart Grid Environments”. In: *Information Reuse and Integration (IRI), 2013 IEEE 14th International Conference on*. August 2013, pp. 14–21. DOI: 10.1109/IRI.2013.6642448 [↗](#).
- [C3] **Mike Mabey** and Gail-Joon Ahn. “Towards Collaborative Forensics: Preliminary Framework”. In: *Information Reuse and Integration (IRI), 2011 IEEE International Conference on*. August 2011, pp. 94–99. DOI: 10.1109/IRI.2011.6009527 [↗](#).

Peer-Reviewed Book Chapters & Journal Papers

- [J1] Wonkyu Han, **Mike Mabey**, Gail-Joon Ahn, and Tae Sung Kim. “Simulation-Based Validation for Smart Grid Environments: Framework and Experimental Results”. In: *Integration of Reusable Systems*. Ed. by Thouraya Bouabana-Tebibel and Stuart H. Rubin. Vol. 263. Advances in Intelligent Systems and Computing. Springer International Publishing, 2014, pp. 27–44. ISBN: 978-3-319-04716-4. DOI: 10.1007/978-3-319-04717-1_2 [↗](#).
- [J2] **Mike Mabey** and Gail-Joon Ahn. “Towards Collaborative Forensics”. In: *Information Reuse and Integration in Academia and Industry*. Ed. by Tansel Özyer, Keivan Kianmehr, Mehmet Tan, and Jia Zeng. Springer Vienna, 2013, pp. 237–260. ISBN: 978-3-7091-1537-4. DOI: 10.1007/978-3-7091-1538-1_12 [↗](#).

Poster Presentations

- [P1] **Mike Mabey**, Jeremy Whitaker, Gail-Joon Ahn, and Adam Doupé. *Towards Forensics for Web Thin Clients. Symposium on Information Assurance Research and Education, ASU*. November 2015.
- [P2] Jeremy Whitaker, **Mike Mabey**, Gail-Joon Ahn, and Adam Doupé. *Forensic Analysis on Mobile Devices. Symposium on Information Assurance Research and Education, ASU*. October 2014.
- [P3] **Mike Mabey**, Justin Paglierani, and Gail-Joon Ahn. *Towards Collaborative Forensics. Workshop on Information Assurance Research and Education, ASU*. April 2012.

Works in Progress

- “Forensics for Web Thin Clients” — Presents a technique for fingerprinting Chrome OS extensions and identifying which extensions are installed on an encrypted file system.

TEACHING INTERESTS

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| <ul style="list-style-type: none">• Computer and Network Forensics• Advanced Topics in Digital Forensics• Information Assurance | <ul style="list-style-type: none">• Security Toolkit Programming with Python• Cryptography• Software Security |
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TEACHING EXPERIENCE

Teaching Assistant

Arizona State University

Aug 2010 – Dec 2015

Tempe, AZ

- CSE 465 Information Assurance with Dr. Gail-Joon Ahn: Fall 2010, Fall 2015.
- CSE 469 Computer and Network Forensics with Dr. Gail-Joon Ahn: Spring 2015.
- FSE 100 Introduction to Engineering with Dr. Ryan Meuth: Spring 2014.
- CSE 423/424 Capstone I and CSE 485/486 Capstone II with Dr. Debra Calliss: Spring 2014.
- CSE 467 Data & Information Security with Dr. Gail-Joon Ahn: Spring 2011.

Teaching Assistant (Instructor of Record)

Arizona State University

Aug 2011 – Dec 2014

Tempe, AZ

- CSE 465 Information Assurance: Fall 2014.
- FSE 100 Introduction to Engineering: Fall 2011 – Fall 2013 (5 semesters).

SERVICE

Department

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| <ul style="list-style-type: none">• Team Leader: ASU team in the UCSB International CTF• Panelist: PhD Open House Student Panel | <p><i>2009, 2010, 2014, 2015</i></p> <p><i>Feb 2014, Feb 2015</i></p> |
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Profession

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| <ul style="list-style-type: none">• Student Program Committee Member:<ul style="list-style-type: none">◦ IEEE Security & Privacy• Conference Proceedings Subreviewer:<ul style="list-style-type: none">◦ ACM CODASPY◦ SACMAT◦ ASIACCS• Student Volunteer:<ul style="list-style-type: none">◦ ACM CCS | <p><i>2016</i></p> <p><i>2013, 2014, 2015, 2016</i></p> <p><i>2014</i></p> <p><i>2014</i></p> <p><i>2014</i></p> |
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Technical Blog Posts

- [B1] **Mike Mabey**. *How to check out an old version of Chromium OS*. <http://mikemabey.blogspot.com/2016/02/how-to-check-out-old-version-of.html>. February 26, 2016.
- [B2] **Mike Mabey**. *Fixing repo init to check out Chromium OS code*. <http://mikemabey.blogspot.com/2015/01/fixing-repo-init-to-check-out-chromium.html>. January 30, 2015.
- [B3] **Mike Mabey**. *Getting into Developer Mode on the HP Pavilion 14 Chromebook*. <http://mikemabey.blogspot.com/2013/05/getting-into-developer-mode-on-hp.html>. May 8, 2013.
- [B4] **Mike Mabey**. *OpenVPN Update: Fixed!* <http://mikemabey.blogspot.com/2012/06/openvpn-update-fixed.html>. June 6, 2012.
- [B5] **Mike Mabey**. *Debian on Android and my quest for a full-fledged terminal Python IDE*. <http://mikemabey.blogspot.com/2012/06/debian-on-android-and-my-quest-for-full.html>. June 23, 2012.

PROFESSIONAL EXPERIENCE

Summer Intern

Jul 2015 – Sep 2015

Arizona Cyber Threat Response Alliance (ACTRA)

Phoenix, AZ

- Designed an operationalized workflow for AZ Infragard member organizations to share **threat intelligence** through a common **STIX/TAXII** platform.

Student Trainee

Jun 2013 – Aug 2013, Jun 2014 – Aug 2014

US Army

Fort Meade, MD

- Summer internships in connection with DoD IASP scholarship.

Graduate Student Summer Intern

May 2011 – Jul 2011

Sandia National Laboratories

Albuquerque, NM

- Helped design a dynamic malware analysis framework built on **OpenStack**, allowing incident responders to define customizable analysis environments and use arbitrary analysis tools in triage or manual analysis mode.
- Wrote **Python** scripts to automate the setup process for using a SheevaPlug computer as a wireless intrusion detection agent running **Kismet**.

Graduate Student Recruitment Specialist/Webmaster

Jul 2006 – Aug 2009

Electrical & Computer Engineering Department USU

Logan, UT

- Primary responsibilities included maintaining and augmenting the department website using **PHP**, **MySQL**, and other basic web technologies like **CSS**, **JavaScript**, and an **SMTP** server.
- Completed multiple graphics design projects for the department using **Photoshop**, **Illustrator**, and **GIMP**.

PROFESSIONAL MEMBERSHIPS

- IEEE (Student Member)
- IEEE Computer Society

PROFESSIONAL DEVELOPMENT

- Preparing Future Faculty (GRD 791 at ASU) *Aug 2015 – Present*
The Preparing Future Faculty (PFF) program is a year-long series of seminars, discussions and activities designed to expose graduate students and postdocs more fully to the realities of teaching, research and service in higher education.
- Writing Effectively: The Art of Argument (Workshop at ASU) *Oct 2015*

REFERENCES

Please feel free to contact any of my references.

Gail-Joon Ahn

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Stephen S. Yau

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