

# Michael K. Mabey

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## EDUCATION

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**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

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**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

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- 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

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

## RESEARCH EXPERIENCE

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### 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

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### 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, pages 11–20. October 2013.
- [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, pages 14–21. August 2013. 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, pages 94–99. August 2011. 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 Thouraya Bouabana-Tebibel and Stuart H. Rubin, editors, *Integration of Reusable Systems*, volume 263 of *Advances in Intelligent Systems and Computing*, pages 27–44. Springer International Publishing, 2014. 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 Tansel Özyer, Keivan Kianmehr, Mehmet Tan, and Jia Zeng, editors, *Information Reuse and Integration in Academia and Industry*, pages 237–260. Springer Vienna, 2013. 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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- Computer and Network Forensics
- Advanced Topics in Digital Forensics
- Information Assurance
- Security Toolkit Programming with Python
- Cryptography
- Software Security

## TEACHING EXPERIENCE

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### 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

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### Department

- Team Leader: ASU team in the UCSB International CTF *2009, 2010, 2014, 2015*
- Panelist: PhD Open House Student Panel *Feb 2014, Feb 2015*

### Profession

- Student Program Committee Member:
  - IEEE Security & Privacy *2016*
- Conference Proceedings Subreviewer:
  - ACM CODASPY *2013, 2014, 2015, 2016*
  - SACMAT *2014*
  - ASIACCS *2014*
- Student Volunteer:
  - ACM CCS *2014*

## 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 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 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 2013.
- [B4] **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 2012.
- [B5] **Mike Mabey**. OpenVPN Update: Fixed! <http://mikemabey.blogspot.com/2012/06/openvpn-update-fixed.html>, June 2012.

## PROFESSIONAL EXPERIENCE

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### 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

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- IEEE (Student Member)
- IEEE Computer Society

## PROFESSIONAL DEVELOPMENT

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- 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

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*Please feel free to contact any of my references.*

### **Gail-Joon Ahn**

Director, Center for Cybersecurity and Digital Forensics ☞  
Professor of Computer Science and Engineering  
Fulton Entrepreneurial Professor  
School of Computing, Informatics and Decision Systems Engineering  
Ira A. Fulton Schools of Engineering, Arizona State University  
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<http://www.public.asu.edu/~gahn1/> ☞  
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### **Adam Doupe**

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### **Frank J. Grimmelmann**

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Arizona Cyber Threat Response Alliance (ACTRA)  
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[fgrimmelmann@actraaz.org](mailto:fgrimmelmann@actraaz.org) ☞

### **Stephen S. Yau**

Director, Information Assurance Center ☞  
Professor of Computer Science and Engineering  
School of Computing, Informatics and Decision Systems Engineering  
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[yau@asu.edu](mailto:yau@asu.edu) ☞