

# Michael K. Mabey

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## EDUCATION

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

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

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

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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

Security Engineering for Future Computing (SEFCOM) Lab, ASU  
*Lab Directors:* Gail-Joon Ahn, Adam Doupé

*Nov 2009 – Present*  
Tempe, AZ

- 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*. October 2013, pp. 11–20. DOI: 10.4108/icst.collaboratecom.2013.254125.
- [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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- 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 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

- |   |   |
|---|---|
| <b>Summer Intern</b>  | <i>Jul 2015 – Sep 2015</i>                      |
| Arizona Cyber Threat Response Alliance (ACTRA)  | Phoenix, AZ                                     |
| <ul style="list-style-type: none"> <li>• Designed an operationalized workflow for AZ Infragard member organizations to share <b>threat intelligence</b> through a common <b>STIX/TAXII</b> platform.</li> </ul>   |   |
| <b>Student Trainee</b>  | <i>Jun 2013 – Aug 2013, Jun 2014 – Aug 2014</i> |
| US Army   | Fort Meade, MD                                  |
| <ul style="list-style-type: none"> <li>• Summer internships in connection with DoD IASP scholarship.</li> </ul>   |   |
| <b>Graduate Student Summer Intern</b>   | <i>May 2011 – Jul 2011</i>                      |
| Sandia National Laboratories  | Albuquerque, NM                                 |
| <ul style="list-style-type: none"> <li>• Helped design a dynamic malware analysis framework built on <b>OpenStack</b>, allowing incident responders to define customizable analysis environments and use arbitrary analysis tools in triage or manual analysis mode.</li> <li>• Wrote <b>Python</b> scripts to automate the setup process for using a SheevaPlug computer as a wireless intrusion detection agent running <b>Kismet</b>.</li> </ul> |   |
| <b>Graduate Student Recruitment Specialist/Webmaster</b>  | <i>Jul 2006 – Aug 2009</i>                      |
| Electrical & Computer Engineering Department USU  | Logan, UT                                       |
| <ul style="list-style-type: none"> <li>• Primary responsibilities included maintaining and augmenting the department website using <b>PHP</b>, <b>MySQL</b>, and other basic web technologies like <b>CSS</b>, <b>JavaScript</b>, and an <b>SMTP</b> server.</li> <li>• Completed multiple graphics design projects for the department using <b>Photoshop</b>, <b>Illustrator</b>, and <b>GIMP</b>.</li> </ul>                                      |   |

## PROFESSIONAL MEMBERSHIPS

- 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/> [✉](#)  
[gahn@asu.edu](mailto:gahn@asu.edu) [✉](#)

### **Adam Doupe**

Assistant Professor of Computer Science and Engineering  
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<http://adamdoupe.com> [✉](#)  
[doupe@asu.edu](mailto:doupe@asu.edu) [✉](#)

### **Frank J. Grimmelmann**

President & CEO/Intelligence Liaison Officer  
Arizona Cyber Threat Response Alliance (ACTRA)  
Phone: (623) 551-1526  
Fax: (623) 551-4221  
[fgrimmelmann@actraaz.org](mailto:fgrimmelmann@actraaz.org) [✉](#)

**Stephen S. Yau**

Director, Information Assurance Center [↗](#)

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