

# Michael K. Mabey

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## EDUCATION

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**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

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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

**SAT/ACT Instructor** *Sep 2015 – Oct 2015*  
Minerva Learning, LLC  
Chandler, AZ

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

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

**Student Trainee (Civilian)** *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:* [S1], [P1], [T1], [T2]
  - 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 Defense Information Assurance Scholarship Program (IASP)
  - 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 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 Submitted (In Press)

- [S1] **Mike Mabey**, Adam Doupé, Ziming Zhao, and Gail-Joon Ahn. "dbling: Identifying Extensions Installed on Encrypted Web Thin Clients". In: *Digital Investigation* (2016). The Proceedings of the Sixteenth Annual DFRWS Conference (In Press). DOI: 10.1016/j.diin.2016.04.007.

## 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** Aug 2010 – Dec 2015  
Arizona State University 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.

**SAT/ACT Instructor** Sep 2015 – Oct 2015  
Minerva Learning, LLC Chandler, AZ

- Individual tutor for a high school student preparing for the PSAT.

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

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

## TECHNICAL STRENGTHS & QUALIFICATIONS

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<b>Programming Languages</b>	Python, C/C++, HTML, CSS, $\LaTeX$
<b>Forensic Tools</b>	FTK, Sleuth Kit & Autopsy, dd, HxD, etc.
<b>Protocols &amp; APIs</b>	JSON, XML, REST, STIX/TAXII
<b>Network Administration/Security</b>	OpenVPN, Wireshark, ufw, Apache, lighttpd
<b>Operating Systems</b>	Windows, Linux, Chrome OS
<b>Databases</b>	MySQL, SQLite

## 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

- [T1] **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.
- [T2] **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.
- [T3] **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.
- [T4] **Mike Mabey**. *OpenVPN Update: Fixed!* <http://mikemabey.blogspot.com/2012/06/openvpn-update-fixed.html>. June 6, 2012.
- [T5] **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

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### Summer Intern

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

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

### Student Trainee (Civilian)

US Army *Jun 2013 – Aug 2013, Jun 2014 – Aug 2014*  
Fort Meade, MD

- Summer internships in connection with DoD IASP scholarship.

### Graduate Student Summer Intern

Sandia National Laboratories

May 2011 – Jul 2011

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

Electrical & Computer Engineering Department USU

Jul 2006 – Aug 2009

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

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Brickyard Engineering (BYENG) Bldg, Room 486

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Tempe, AZ 85281

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<http://www.public.asu.edu/~gahn1/>

[gahn@asu.edu](mailto:gahn@asu.edu)

**Adam Doupé**

Assistant Professor of Computer Science and Engineering  
School of Computing, Informatics and Decision Systems Engineering  
Ira A. Fulton Schools of Engineering, Arizona State University  
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699 S. Mill Avenue  
Tempe, AZ 85281  
Fax: (480) 965-2751  
<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  
Professor of Computer Science and Engineering  
School of Computing, Informatics and Decision Systems Engineering  
Ira A. Fulton Schools of Engineering, Arizona State University  
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