

OBJECTIVE

I am seeking a faculty position in Computer Science or a closely related field. My research interests mainly include security and privacy in mobile systems, and more recently, the Internet of Things. In the past, I made research contributions to software systems as well as wireless communications and networks.

EDUCATION

University of Michigan, Ann Arbor, MI

Ph.D. in Computer Science and Engineering

Sep. 2011 – present

- Thesis: Location Privacy Protection for Mobile Users
- Research Advisor: Prof. Kang G. Shin
- GPA: 4.0

American University of Beirut, Beirut, Lebanon

M.S. in Electrical and Computer Engineering

Sep. 2009 – Feb. 2011

- Thesis: Client Side Consistency Mechanisms for Cache Deployment in MANETs
- Advisor: Prof. Hassan A. Artail
- GPA : 95.4/100 (equivalent to 4.0)

B.E. Computer and Communications Engineering

Sep. 2005 – Jun. 2009

- Final Year Project: A Cognitive VANET for Enhancing Safety Applications
- GPA: 91.62/100 (equivalent to 4.0), graduation with high distinction

RESEARCH EXPERIENCE

University of Michigan, Ann Arbor, MI

Graduate Student Research Assistant in the Real-Time Computing Lab

Sep. 2011 – present

- Developing a novel theory for cyber-deception.
- Investigating security and privacy protection mechanisms in the Internet of Things.
- Designed and Implemented RT-OPEX, a scheduling approach for Cloud Radio Access Networks.
- Coauthored a funded proposal to the NSF about securing interactions in the Internet of Things (CNS-1646130).
- Designed and implemented LP-Guardian and LP-Doctor, Android-based location privacy enhancing tools.
- Coauthored a funded Google Faculty Award proposal

HP Labs, Palo Alto, CA

Research Associate

May. 2014 – present

- Designed and implemented BLE-Guardian to protect the security and privacy of BLE-equipped devices.
- Designed and implemented PR-LBS to address location privacy threats in indoor environments.
- Drafted two patent applications (both are already filed to the USPTO).

Qualcomm Research Silicon Valley, Santa Clara, CA

Engineering Intern

May. 2013 – Aug. 2013

- Designed efficient behavioral-based mechanisms for real-time detection of mobile malware.

- Developed machine learning transformation models which are part of Qualcomm’s Smart Protect platform.
- Drafted six patent applications (four of which are already filed to the USPTO).

American University of Beirut, Beirut, Lebanon

Research Assistant

Sep. 2006 – Aug.2011

- Investigated caching architectures for mobile adhoc networks, including client cache consistency, replica management, and privacy preserving mechanisms.
- Designed, implemented and analyzed a man-in-the-middle server for mobile devices access to web services.
- Conducted research in VANETS and the associated IEEE standards (IEEE 802.11p, 1609.1-4).
- Designed and implemented a novel and efficient web change detection system which compares two complex web pages in less than 10 seconds.
- Implemented and evaluated a novel property based coverage criteria (PBCOV) that measures the adequacy of a test suite in terms of its coverage of the reachable state space of formal program properties.
- Implemented and evaluated a hardware testing technique based on the wavelet transform of gate transient current in CMOS.
- Coauthored multiple funded grant proposals by the Lebanese National Council for Scientific Research and University Research Board at AUB.

Institute of Communications and Navigation, German Aerospace Center (DLR), Germany

Summer Intern

Jul. 2008 – Sep. 2008

- Implemented, extended, and tested algorithms for hybrid and cooperative positioning using global navigation satellites systems, cellular network, and wireless area network.
- Post-processed data of an outdoor to indoor measurement campaign, and implemented a graphical user interface to visualize processed measurement results.

PUBLICATIONS

Conference Papers

1. K.C. Garikipati, K. Fawaz, and K.G. Shin, “RT-OPEX: Flexible Scheduling for Cloud-RAN processing,” *The 12th International Conference on emerging Networking EXperiments and Technologies (ACM CoNext 2016)*, Accepted.
2. K. Fawaz, K.H. Kim, and K.G. Shin, “Protecting Privacy of BLE Device Users,” *25th USENIX Security Symposium (USENIX Security Symposium 2016)*, Austin, TX, USA, August 2016.
3. K. Fawaz, K.H. Kim, and K.G. Shin, “Privacy vs. Reward in Indoor Location-Based Services,” *16th Privacy Enhancing Technologies Symposium (PETS 2016)*, Dramstadt, Germany, July 2016.
4. H. Harkous, K. Fawaz, K.G. Shin, and K. Aberer “PriBots: Conversational Privacy with Chatbots,” *SOUPS 2016 Workshop on the Future of Privacy Indicators*, Denver, CO, USA, June 2016.
5. K. Fawaz, H. Feng and K.G. Shin, “Anatomization and User-Level Prevention of Mobile Apps’ Location Privacy Threats,” in *24th USENIX Security Symposium 2015*, Washington D.C., USA, August 2015.
6. H. Feng, K. Fawaz and K.G. Shin, “LinkDroid: Reducing Unregulated Aggregation of App Usage Behaviors,” in *24th USENIX Security Symposium*, Washington D.C., USA, August 2015.
7. K. Fawaz and K.G. Shin, “Location Privacy for Smartphone Users,” in *21st ACM Conference on Computer and Communications Security (CCS 2014)*, Arizona, USA, November 2014.
8. K. Fawaz and H. Artail, “A Two-layer Cache Replication Scheme for Dense Mobile Ad hoc Networks,” in *IEEE Globecom 2012*, California, USA, December 2012.
9. K. Fawaz, N. Abbani, and H. Artail, “A Privacy-Preserving Cache Management System for MANETs,” in *19th International Conference on Telecommunications (ICT 2012)*, Jounieh, Lebanon, April 2012.

10. M. Dabbagh, A. Ghandour, K. Fawaz, W. El Hajj, and H. Hajj, "Slow Port Scanning Detection," in *7th International Conference on Information Assurance and Security (IAS 2011)*, Melaka, Malaysia, December 2011.
11. A. Ghandour, K. Fawaz, and H. Artail, "Fuzzy Cognitive Vehicular Ad hoc Networks," in *IEEE 7th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob 2011)*, Shanghai, China, October 2011.
12. A. Ghandour, K. Fawaz, H. Artail, and R. Hamadeh, "Extending the DSRC's Control Channel using Cognitive Networking Concepts and Fuzzy Logic," in *22nd IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2011)*, Toronto, Canada, September 2011.
13. A. Ghandour, K. Fawaz, and H. Artail, "Data Delivery Guarantees in Congested Vehicular Ad hoc Networks Using Cognitive Networks," in *The 7th International Wireless Communications and Mobile Computing Conference (IWCMC 2011)*, Istanbul, Turkey, July 2011.
14. K. Fawaz, A. Ghandour, M. Olliek, and H. Artail, "Improving Reliability of Safety Applications in Vehicle Ad hoc Networks through the Implementation of a Cognitive Network," in *IEEE 17th International Conference on Telecommunications (ICT 2010)*, Doha, Qatar, April 2010.
15. A. Ghandour, K. Fawaz, A. Chehab and A. Kayssi, "Wavelet Transform-Based Transient Current Analysis for Detection of Gate-oxide Shorts in CMOS," in *4th IEEE International Design and Test Workshop (IDT 2009)*, Riyadh, Saudi Arabia, Nov. 2009.
16. W. Wang, T. Jost, C. Mensing, A. Dammann, and K. Fawaz, "Indoor Propagation Effects on ToA Error for Joint GNSS and Terrestrial Radio Based Localization," in *69th IEEE Vehicular Technology Conference (VTC 2009 - Spring)*, Barcelona, Spain, April 2009.
17. H. Artail, M. Safieddine, T. Safar, M. El-Khatib, T. Ibrahim, and K. Fawaz, "Dynamic Simulations of VANET Scenarios," in *International Conference on Wireless Access in Vehicular Environments (WAVE 2008)*, Dearborn, MI., December 2008.
18. H. Artail, J. El-Hage, R. Aouad, K. Fawaz, "ASKME: Adaptive and Self-evolving Knowledge-base for Mobile Environments," in *6th International Conference on Informatics and Systems*, Cairo, Egypt, March 2008.

Journal Papers

1. K. Fawaz, A. Artail, R. Al-Khansa, H. Artail, and H. Safa, "Replication Enabled Distributed Cache Invalidation Method," *Wireless Communications and Mobile Computing*, vol. 15, issue 13, pp. 1711-1728, September 2015.
2. K. Fawaz, F. Zaraket, W. Masri, and H. Harkous, "PBCOV: A Property Based Coverage Criterion," *Software Quality Journal*, vol. 23, issue 1, pp. 171-202, March 2015.
3. A. Ghandour, K. Fawaz, H. Artail, M. Di Felice and L. Bononi, "Improving Vehicular Safety Message Delivery through the Implementation of a Cognitive Vehicular Network," *Elsevier Ad Hoc Networks*, vol. 11, no. 8, pp. 2408-2422, November 2013.
4. K. Fawaz, and H. Artail, "DCIM: Distributed Cache Invalidation Method for Maintaining Cache Consistency in Wireless Mobile Networks," in *IEEE Transactions on Mobile Computing*, vol. 12, no. 4, pp. 680-693, April 2013.
5. H. Artail, K. Fawaz, and A. Ghandour, "A Proxy-Based Architecture for Dynamic Discovery and Invocation of Web Services from Mobile Devices," in *IEEE Transactions on Service Computing*, vol. 5, no. 1, pp. 99-115, March 2012.
6. H. Artail, R. Antoun, and K. Fawaz, "CRUST: Implementation of Clustering and Routing Functions for Mobile Ad hoc Networks Using Reactive Tuple Spaces," *Ad Hoc Networks*, vol. 7, no. 6, pp. 1064 - 1081, August 2009.
7. H. Artail, and K. Fawaz, "A Fast HTML Web Page Change Detection Approach Based on Hashing and Reducing the Number of Similarity Computations," *Data and Knowledge Engineering*, vol. 66, no. 2, pp. 326-337, August 2008.

Manuscripts Under Review

1. H. Feng*, K Fawaz* and K.G. Shin (* co-primary authors), “Continuous Authentication for Voice Assistants,” in *IEEE S&P 2017*, Under Review.

PATENTS

Granted

1. US Patent 9,147,072, “Method and System for Performing Behavioral Analysis Operations in a Mobile Device based on Application State”, K. Fawaz, V. Sridhara, R. Gupta, M. Christodorescu, Sep. 29, 2015.

Pending (public)

1. US Patent App. 14/091,707, “Methods and systems of dynamically generating and using device-specific and device-state-specific classifier models for the efficient classification of mobile device behaviors”, V. Sridhara, R. Gupta, K. Fawaz, Nov. 27, 2013.
2. US Patent App. 14/090,261, “Methods and Systems of Using Boosted Decision Stumps and Joint Feature Selection and Culling Algorithms for the Efficient Classification of Mobile Device Behaviors”, K. Fawaz, V. Sridhara, R. Gupta, Nov. 26, 2013.
3. US Patent App. 14/090,200, “Pre-identifying Probable Malicious Rootkit Behavior Using Behavioral Contracts”, D. Fiala, M. Christodorescu, V. Sridhara, R. Gupta, K. Fawaz, Nov. 26, 2013.

TEACHING EXPERIENCE

American University of Beirut, Beirut, Lebanon

Sep. 2006 – Feb. 2011

- Mentored a graduate student on securing mobile devices access for web services, Summer 2010.
- Instructed the laboratory of the Data Structures and Algorithms course, Summer 2010.
- Designed and instructed the Mobile Adhoc and Sensor Networks lab, Spring 2010.
- Assisted teaching the Communications Systems laboratory, Fall 2010.
- Prepared course material for the Web server Design, Mobile Adhoc and Sensor Networks, Pervasive Computing, Computer Networks, Electric Circuits, Data Structures and Algorithms, and Computers and Programming courses.

SERVICE

- External expert at the master project exam for Cheng-Hsiang Chiu, EPFL.
- Participant in “Lunch & Lab with a Grad” program in the University of Michigan.
- Member of the “Department Visit Weekend Planning Committee” in the College of Engineering at UMich.
- Graduate student member of the Institute of Electric and Electronic Engineers (IEEE), IEEE Computer Society, IEEE Communications Society, USENIX Association, and the ACM.
- External Reviewer for IEEE VTC (2015), IEEE Transactions for Mobile Computing (2015), Journal of Network and Computer Applications (2014), IEEE Transactions on Vehicular Technology (2013), IEEE Transactions on Parallel and Distributed Systems (2010), International journal of Parallel, Emergent, and Distributed Systems (2010, 2013), IEEE INFOCOM (2011, 2013), IEEE Globecom (2012), IEEE PICom (2009), CyberC (2010), and CORAL (2012, 2013).

HONORS AND AWARDS

- ACM CoNEXT 2016 student travel grant.
- PETS 2016 student travel grant.
- Honorable mention at the 2015 CSE Honors Competition at the University of Michigan.
- USENIX Security 2015 student travel grant.
- CCS 2014 student travel grant.
- Rackham travel grant 2014, 2015,2016.
- Full departmental fellowship, University of Michigan, 2011.
- Abdul Hadi Debs Endowment award for academic excellence, American University of Beirut, June 2011.

- Distinguished graduate award for the class of 2009, American University of Beirut, June 2009.
- Placement on the dean's honor list, American University of Beirut, Sep. 2005 – June 2009.

REFERENCES

- Dr. Kang G. Shin, Professor, Computer Science and Engineering Department, University of Michigan, kgshin@eecs.umich.edu, +1-734-763-0391
- Dr. Atul Prakash, Professor, Computer Science and Engineering Department, University of Michigan, aprakash@umich.edu, +1-734-763-1585
- Dr. J. Alex Halderman, Professor, Computer Science and Engineering Department, University of Michigan, jhalderm@eecs.umich.edu, +1-734-647-1806
- Dr. Kyu-Han Kim, Principal Research Scientist, Hewlett Packard Labs, kyu-han.kim@hpe.com
- *Other references available on request.*