Curriculum Vitae

Muhammad Ahmad Bashir
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Education

Khoury College of Computer Sciences	Boston, USA
Ph.D. in Computer Science (Advisor: Christo Wilson)	2014 – Present
LUMS School of Science and Engineering	Lahore, Pakistan
B.S. in Computer Science	2008 – 2012

Research Interests

My current research focuses on **web security & privacy**. In particular, I am studying the **online advertising** ecosystem on the web to understand how it impacts users' privacy. My goal is to make the online advertising ecosystem more transparent to enable users make informed decisions regarding their personal information. I have previously worked on projects aimed at **limiting abuse** on online services such as Facebook and Twitter.

Selected Publications

1. **Quantity vs. Quality: Evaluating User Interest Profiles Using Ad Preference Managers** (NDSS '19)
   - First large-scale study of the "interests" inferred by ad networks using Ad Preference Managers.
   - We investigate how these interests were inferred and how useful they were according to the users.

2. **How Tracking Companies Circumvented Ad Blockers Using WebSockets** (IMC '18 & ConPro '18')
   - A study of 100,000 websites to investigate how some tracking companies leveraged a bug in the `webRequest` API to circumvent blocking extensions for tracking and serving ads using WebSockets.

3. **Diffusion of User Tracking Data in the Online Advertising Ecosystem** (PETS '18)
   [FPF Privacy Papers for Policy Makers Award]
   - We model how user tracking data propagates in the advertising ecosystem because of RTB.
   - We model the efficacy of ad and tracker blocking extensions at protecting users' privacy.

4. **Recommended For You: A First Look at Content Recommendation Networks** (IMC '16)
   - First look at how content (ads and recommendations) is served by Content Recommendation Networks.
   - This study highlights the inconsistencies in how the content is served and calls for stronger regulations.

5. **Tracing Information Flows Between Ad Exchanges Using Retargeted Ads** (USENIX Security '16)
   - We detect information sharing among ad exchanges using a generic technique involving retargeted ads.
   - This study detects 31% of cookie matching partners which were missed by prior methods.

6. **Strength in Numbers: Robust Tamper Detection in Crowd Computations** (COSN '15) **[Best Paper]**
   - Detection of large-scale (Sybil-tampered) crowd computations in Online Social Networks.
   - Dataset consists of roughly 300M Twitter users and 30K businesses with 341K reviews from Yelp.

7. **Towards Detecting Anomalous User Behavior in Online Social Networks** (USENIX Security '14)
   - Detection of anomalous identities, using PCA, on Facebook used in diverse attack strategies.

Ongoing Work

1. **Cross Device Tracking**

   - A comprehensie study of the state of cross-device tracking and the underlying mechanisms used.
   - High-level idea is to construct several personas, perform browsing, and solicit ads on other devices.

2. **Automation of Privacy Protection Filter Lists**

   - We want to use ad exchanges listed by publishers in their `ads.txt` files to discover more tracking and ad related domains in the advertising graph.

3. **A Longitudinal Study of Ads.txt Protocol**

   - We analyze the growth and patterns in the adoption of `ads.txt` protocol over a year-long dataset.
   - One of the major goals is to see whether ad networks are abiding by the protocol or not.

Honors and Awards

1. Best Stupent Paper Award **(FPF Privacy Papers for Policymakers)**	2018
2. Best Paper Award **(COSN '15)**	2015
3. Best Paper Award **(SECRYPT '15)**	2015
4. Research Intern Fellowship **(Max Planck Institute for Software Systems)**	2012
5. Winner, Ericsson – PTA Mobile Excellence Award **(National award)**	2011
6. Winner, SOFTEC **(National award)**	2011

Work Experience

1. Graduate Research Assistant **(Northeastern University)**	Sep 2014 – Present
2. International Computer Science Institute **(ICSI, Berkeley)**	Summer 2018
3. Security Engineering Intern **(Facebook Inc.)**	Summer 2016/ Summer 2017
4. Research Intern **(Max Planck Institute, SWS)**	Oct 2012 – Feb 2013
5. Research Assistant **(LUMS-SSE)**	Jun 2011– Sep 2011/ Feb 2013– Jul 2013

Teaching Experience

1. Teaching Assistant **(CS 3700 - Networks and Distributed Systems)**	Fall 2018
2. Teaching Assistant / Guest Lecturer **(CS 2550 - Foundations of Cybersecurity)**	Spring 2018
3. Teaching Assistant **(CS 585: Service Oriented Computing)**	Spring 2013
4. Teaching Assistant **(CS 582: Distributed Systems)**	Fall 2012
5. Teaching Assistant **(CS 380: Databases)**	Spring 2012

Technical Skills

Languagues: Python, Java, Hack, C++, Javascript, SQL, HTML, PHP
Tools: Spark, Weka, Matlab, BPEL
Platforms: Linux, Windows, Mac OS X

References

1. Christo Wilson - Associate Professor (Northeastern University)	cbw@ccs.neu.edu
2. Alan Mislove - Associate Professor (Northeastern University)	amislove@ccs.neu.edu