Bin Liu

PhD Student
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Education

- **PhD Student, Carnegie Mellon University**   2011 - now

  Mobile Commerce Lab, School of Computer Science
  Advisor: Prof. Norman Sadeh

- **BS, Shanghai Jiao Tong University, China**   2007 - 2011

  Computer Science & Technology (ACM Honored Class)
  Advisor: Prof. Yong Yu & Prof. Guirong Xue

Technical Skills

- Programming Experience in Java, Python, R

- Machine Learning Applications (Classification, Clustering, Matrix / Tensor Factorization, etc.)

- Android App Development, App Static Analysis

Honors & Awards

2016 International Association of Privacy Professionals (IAPP) Privacy Award
2015 Yahoo InMind Fellowship
2010 Google Excellence Scholarship

Research Experience

- **Intern, Google**   May 2016 - Aug 2016

  Host: Dr Nina Taft (Privacy Research & Design Team)

  - Designed and implemented the backend of a proposed Android feature that provide personalized assistance to users on permission settings.

  - Analyzed Android SafetyNet log data of Android users' privacy-related decision records. Applied scalable machine learning techniques (hierarchical clustering, scalable svm classifiers, decision tree) to build a personalized recommender on permission settings.

  - Modified Android M+ system code (Settings & PackageInstaller) to import the Permission Assistant functionality to Android.

- **Intern, Samsung Research America**   May. 2014 - Aug. 2014

  Advisor: Dr. Hongxia Jin, Dr Bin Liu (Advanced Technology Lab)

  - Project: Efficient Privilege De-Escalation for Advertising Libraries in Mobile Apps

  - Together implemented the system PEDAL. The system can efficiently de-escalate the privileges for third party advertising libraries while keeping the app working properly. (We applied static analysis and bytecode instrumentation so that no rooting is required)

  - Implemented the classifier to accurately detect the third-party advertising libraries even in the presence of obfuscated code.

  - Evaluated the system on large-scale Android app dataset and proved that the system has 98% accuracy in detecting and instrumenting ad libraries, and imposes less than 1% runtime overhead on apps.

- **Research Assistant, Carnegie Mellon University**   2011 - now
  Advisor: Professor Norman Sadeh

    - Proposed and implemented methodology to model users' diverse privacy preferences base on privacy personas / profiles. This mechanism reconciles accuracy of privacy protection and transparency, which affects usability and user satisfaction.
    - Designed and implemented privacy nudge notifications to increase user awareness and engagement in the app privacy management process.
    - Designed and implemented Android permission manager with profile-powered privacy nudges and recommendations. Conducted multiple field experiments on Amazon MTurk users and rooted Android phone users.

- **Research Intern, Microsoft Research Asia**   Sep. 2010 - Dec. 2010
  Advisor: Dr. Haixun Wang (Web Search & Mining Group)

    - Project: Action Extraction in Probase knowledge base
    - Worked on Probase to build a universal probabilistic ontology from the Web. Designed domain-independent automated methods to extract the most related actions between Probase concepts, to enrich the Probase taxonomy and improve performance of Bing applications such as topic search.

Publications

- Bin Liu, Mads Schaarup Andersen, Florian Schaub, Hazim Almuhimedi, Norman Sadeh, Yuvraj Agarwal, Alessandro Acquisti, Follow my Recommendations: A Personalized Privacy Assistant for Mobile App Permissions. In *Proceedings of the Twelfth Symposium on Usable Privacy and Security (SOUPS 2016)* (Best Paper Award)

- Yuan Tian, Bin Liu, Weisi Dai, Blase Ur, Patrick Tague, Lorrie Faith Cranor, Supporting Privacy-Conscious App Update Decisions with User Reviews. In *the 5th Annual ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM 2015)*

- Bin Liu, Bin Liu(me), Hongxia Jin and Ramesh Govindan. Efficient Privilege De-Escalation for Ad Libraries in Mobile Apps In *Proceedings of the 13th International Conference on Mobile Systems, Applications, and Services* (ACM MobiSys '15).

- Jialiu Lin, Bin Liu, Norman Sadeh and Jason I Hong. Modeling Users' Mobile App Privacy Preferences: Restoring Usability in a Sea of Permission Settings. In *Proceedings of the tenth symposium on Usable Privacy and Security* (SOUPS '14).

- Bin Liu, Jialiu Lin and Norman Sadeh. Reconciling Mobile App Privacy and Usability on Smartphones: Could User Privacy Profiles Help? In Proceedings of the 23rd international conference on World wide web (WWW '14).

- Hazim Almuhimedi, Shomir Wilson, Bin Liu and Norman Sadeh. Tweets Are Forever: A Large-Scale Quantitative Analysis of Deleted Tweets. In *Proceedings of the 2013 ACM conference on Computer Supported Cooperative Work* (CSCW '13).