Abdul Haddi Amjad

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Research Interest

- Security & Privacy
- Software Engineering & Code Refactoring

Education

- **Virginia Tech** — Blacksburg, USA
  Ph.D. student in Computer Science — *Aug. 2021 – Present*
  - My research involves improving user privacy on websites by leveraging software engineering techniques and principles.
  - **Advisor:** Dr.Muhammad Ali Gulzar
  - **Co-Advisor:** Dr.Zubair Shafiq
- **National University of Computing and Emerging Sciences** — Lahore, Pakistan
  Bachelor of Science in Computer Science; GPA: 3.83/4.00 — *Aug. 2017 – Aug. 2021*

Research Work

- **TrackerSift: Untangling Mixed Tracking and Functional Web Resources**: Mixed web resources put content blockers in a bind: risk breaking legitimate functionality if they act and risk missing privacyinvasive advertising and tracking if they do not. TrackerSift progressively classify and untangle mixed web resources (that combine tracking and legitimate functionality) at multiple granularities of analysis (domain, hostname, script, and method). TrackerSift is able to attribute 98% of the script-initiated network requests to either tracking or functional resources at the finest method-level granularity.
  - **Paper:** *here*.
  - **Repository:** *here*.
  - **Video Tutorial:** here.
  - **This work is published at ACM Internet Measurement Conference (IMC), 2021.**
- **Localizing Tracking Code with TrackerSift**: Trackers use advanced code refactoring techniques such as inlining and code bundling to merge tracking code with the core functionality. Blocking such bundled code will cause significant breakage of the webpage. I designed a chrome extension of TrackerSift that performs a hierarchical search on web application entities (domain, hostname, script, and method) to precisely isolate the code responsible for tracking behavior. The extensions is currently deployed to perform large-scale breakage analysis of existing content-blocking tools.
  - **Repository:** *here*.
  - **Video Tutorial:** here.
  - **This work is submitted at International Conference on Software Engineering(ICSE), 2022.**
- **Canary Trap for Third-party Applications**: Despite several recent high-profile incidents, methods to systematically detect data misuse by third-party apps on online social networks are lacking. Our technique associates a honeytoken to a user account and then monitors its unrecognized use via different channels after sharing it with the third-party app. Our hypothesis is that Google market third-party apps get access to the personal information of a large number of users and misuse this data for spam and targeted advertising which also breaks GDPR compliance rules.
  - **Repository:** *here*.
  - **This work will be submitted at ACM Internet Measurement Conference (IMC), 2022.**

Experience

- **Virginia Tech** — Blacksburg, USA
  Graduate Research Assistant in SEED Lab — *Aug 2021 - Present*
- **Educative Inc** — Lahore, Pakistan
  Edpresso Lead — *May 2019 - July 2021*
  - **Managed *Edpresso*** : Educative is fastest growing start-up and I led their Edpresso team for almost three years. We worked on creating free content for software developers. Right now Edpresso has more than 3 million views per month and creates largest organic traffic fro Educative.
- **FAST National University** — Lahore, Pakistan
  Teaching Assistant - Data Structures & Database Systems - Dr.Saira Karim & Dr.Zareen Alamgir — *2020*

Invited Talks

- **Adblock Summit 2021:** Talked about how to disentangle tracking code from functional. My talk is available on youtube: *here*.

Publication Venues

- **ACM Internet Measurement Conference(IMC)**
- **International Conference on Software Engineering(ICSE)**

Projects

- **Othelo Game — Artificial Intelligence, Python**: Developed an automated AI-based Othello game implemented in Python using the custom heuristic and min-max algorithm. Two difficulty levels were introduced, easy and hard. In easy, depth was set to 1 and for hard, it was set to 5.
  - **Repository:** *here*.
- **Automated FrontDesk Officer — Artificial Intelligence, Python**: This was the full term project divided into 3 categories: NLP, CV and 3D Modeling. Worked with the NLP team and utilized IBM cloud services using the python SDK. Trained a Watson bot for a particular context and integrated STT and TTS along with it.
  - **Repository:** *here*.
- **Snake Xenia — Assembly Language, x86**: Replicated the classic snake game implemented in classic x86 assembly. Two difficulty levels were offered to the player where in easy mode, there were less obstacles as compared to extreme mode. Different fruits were used for score points.
  - **Repository:** *here*.
- **Shared Document Editor — Web, JavaScript**: Developed a web application using express.js, socket.io, mssql and nodejs. More than one people can share and edit the document. Only raw JavaScript was used in this project and also utilized jQuery, HTML and CSS.
  - **Repository:** *here*.
- **Car Industry Data warehouse — Data warehouse and Data mining, Microsoft SSIS**: Performed ETL (extraction, transformation, loading) using Microsoft SSIS tool. Created data using Red-gate data generator, performed ETL and created OLAPcubes for data analysis.
  - **Repository:** *here*.
- **Data Compression Tool — Data Structures, C++**: Using the Huffman prefix-free encoding scheme, developed a data compression algorithm. This was implemented with the help of binary trees and priority queues.
  - **Repository:** *here*.

Achievements and Co-curricular

- **Achievements**: Dean's Honor *List* for all eight semesters in undergraduate, Position holder for two semesters.
- **Co-curricular**: Parliamentary style debating(Senior Vice-president VOICE debating society).

References

- **Dr.Muhammad Ali Gulzar:** gulzar@cs.vt.edu
- **Dr.Zubair Shafiq:** zubair@ucdavis.edu