Abbas Acar

Security and Privacy Researcher

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RESEARCH INTERESTS

Privacy-preserving technologies, IoT security/privacy, blockchain security, modern authentication techniques

EDUCATION

Florida International University (FIU) *Miami, FL*   July 2020

PhD in Electrical and Computer Engineering, GPA: 3.97 / 4.0

Florida International University (FIU) *Miami, FL*   April 2019

MSc in Electrical Engineering, GPA: 3.97 / 4.0

Middle East Technical University (METU) *Ankara, Turkey*   June 2015

BSc in Electrical and Electronics Engineering, GPA: 3.00 / 4.0

Minor in Mathematics

ACADEMIC EXPERIENCE

Postdoctoral Associate | *Florida International University*   August 2020 - Present

- <u>Research:</u> Conducting research on novel security and privacy-related research projects such as cryptojacking malware detection, IoT security/privacy, web security, and mobile device security/privacy.
- <u>Mentoring:</u> Providing mentorship to graduate and undergraduate students during their research.
- <u>Service:</u> Assisting my professor in writing grant proposals, serving as a program committee member, and acting as an external reviewer for several top-tier security conferences and journals.

Graduate Research Assistant | *Florida International University*   June 2015 - July 2020

- <u>Research:</u> Worked on several complex cybersecurity projects such as Privacy-Aware Wearable Continues Authentication Framework, IoT security/privacy, and privacy-aware secure data exchange methods.
- <u>Teaching:</u> Assisted my professor with class activities such as the design of the classes, being a substitute if needed, and grading the homework and exams for Internet of Things (IoT)-Cyber-Physical System (CPS) and Network Security classes.

SELECTED PUBLICATIONS

- **[NDSS '24]** <u>Abbas Acar</u>, Guliz Seray Tuncay, Esteban Luques, Harun Oz, Ahmet Aris, and Selcuk Uluagac. "50 Shades of Support: A Device-Centric Analysis of Android Security Updates". Network and Distributed System Security Symposium (NDSS), 2024.
- **[USENIX Security '23]** Harun Oz, Ahmet Aris, <u>Abbas Acar</u>, Guliz Seray Tuncay, Leonardo Babun, and Selcuk Uluagac. "RøB: Ransomware over Modern Web Browsers". In the 32nd USENIX Security Symposium, 2023.
- **[NDSS '22]** Ege Tekiner, <u>Abbas Acar</u>, and A. Selcuk Uluagac. "A Lightweight IoT Cryptojacking Detection Mechanism in Heterogeneous Smart Home Networks". Network and Distributed System Security Symposium (NDSS), 2022. [Acceptance Rate: 16%]
- **[NDSS '22]** Leonardo Babun, Amit Kumar Sikder, <u>Abbas Acar</u>, and A. Selcuk Uluagac. "The Truth Shall Set Thee Free: Enabling Practical Forensic Capabilities in Smart Environments". Network and Distributed System Security Symposium (NDSS), 2022. [Acceptance Rate: 16%]
- **[ACM CSUR '18]** Abbas Acar, Hidayet Aksu, A. Selcuk Uluagac, and Mauro Conti, "A survey on homomorphic encryption schemes: Theory and implementation,". ACM Computing Surveys (CSUR), 2018. [935 citations]

SERVICE

Program Committee | *Reviewer*

- USENIX Security Symposium: 2024
- IEEE Symposium on Security and Privacy (S&P): 2024
- ACM Conference on Computer and Communications Security (CCS): 2023

Organizer Role | *Web Chair*

- ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec): 2019

COMPUTER SKILLS

- **Programming Languages:** Python, C/C++, Solidity (basic), Rust (basic), Verilog (basic)
- **IDEs:** VSCode, Jupyter, Xcode, Matlab, Android Studio/Wear, Xilinx ISE
- **Security Tools:** WireShark, Nmap, JtR, Aircrack, OpenVPN, killerbee, Scapy, HackRF One
- **Reverse-engineering:** IDA Pro, OllyDbg, Netcat, Procmon, ApateDNS
- **ML/DL Frameworks:** Scikit-learn, PyTorch, Keras, TensorFlow
- **Forensics:** Lime and Volatility
- **Blockchain:** Ethereum in BigQuery, web3.py
- **Cryptography:** NTL, HELib, SEAL
- **Web:** Node.js, PHP, WebAssembly (Wasm), HTML, CSS, JSON
- **Virtualization:** VirtualBox, VMware, Docker
- **Data Analysis:** Pandas, SQLite, SciPy, Numpy

PROFESSIONAL ACTIVITIES

Talks |
- "Mind your own cryptocurrency!", Workshop on Learning from Authoritative Security Experiment Results (LASER), 2022.
- Curie: Policy-based secure data exchange", ACM Conference on Data and Application Security and Privacy (CODASPY), 2019
- "WACA: Wearable-Assisted Continuous Authentication", "WACA: Wearable-Assisted Continuous Authentication", 39th IEEE Symposium on Security and Privacy Workshop, 2018.

Demo |
- "WACA: Wearable-Assisted Continuous Authentication", eMerge Americas 2018 and 2019, Miami, FL.
- Abbas Acar, Amit Kumar Sikder, Leonardo Babun, and A. S. Uluagac, "Hacking Smart Devices: Live Demonstration", Technical Presentation at U.S. Chamber of Commerce Cybersecurity Conference, Florida International University, Miami, FL, December 2017.

Media Coverage |
- "Professor Selcuk Uluagac's research team wins Android Security and Privacy Research (ASPIRE) Award", FIU News, December 10, 2021. `https://news.fiu.edu/2021/selcuk-uluagac-wins-coveted-google-aspire-award`
- "Security flaws found in popular smart home devices", PBS NEWS HOUR, Jamie Leventhal, November 6, 2019. `https://www.pbs.org/newshour/science/security-flaws-found-in-popular-smart-home-devices`
- "Encryption doesn't stop him or her or you... from working out what Thing 1 is up to", The Register, Richard Chirgwin, August 10, 2018. `https://www.theregister.com/2018/08/10/internet_of_things_encryption_snooping/`
- "Dangers of Unsecured Surveillance Cameras", NBC 6 News, Miami, August 2016. `https://www.nbcmiami.com/news/local/Dangers-of-UnsecuredSurveillance-Cameras-390530322.html`.
- Abbas Acar, Amit Kumar Sikder, Leonardo Babun, and A. S. Uluagac, "Experts talk cyberattacks on business, lead live 'hack' " FIU News, 2017. `https://newsarchives.fiu.edu/2017/12/cybersecurity-experts-talk-cyberattacks-on-business-lead-live-hack`.
- "Guard Your Gadget", WSVN 7 News, Miami, November 2016. url: `https://wsvn.com/news/special-reports/guard-your-gadgets/`.

HONORS & ACCOLADES

- High Honor and Honor degrees at Middle East Technical University, Ankara, Turkey.
- Ranked in the top 0.13% (2000th) among 1.5 million students in the University Entrance Exam in Turkey.
- Nominated for Mathematics Science Olympiads in High School in Turkey.