

# Abbas Acar, PhD

Postdoctoral Associate

Cyber-Physical Systems Security Lab (CSL)

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<https://scholar.google.com/citations?user=-LVF4y0AAAAJ>

## Education

- PhD** (2015-2020)
  - Florida International University (FIU), Miami, FL, USA
  - Major:* Electrical and Computer Engineering
- MSc** (2015-2019)
  - Florida International University (FIU), Miami, FL, USA
  - Major:* Electrical Engineering
- BSc** (2010-2015)
  - Middle East Technical University (METU), Ankara, Turkey
  - Major:* Electrical and Electronics Engineering
  - Minor:* Mathematics

## Research and Teaching Experience

- Florida International University** (2020-Present)
  - **Postdoctoral Associate:** 1) *Research:* Conducting research on novel cybersecurity and privacy-related research projects such as cryptojacking malware detection systems, IoT security/privacy issues, and mobile device security/privacy issues. 2) *Teaching:* Mentoring graduate and undergraduate students during their research. 3) *Service:* Assisting my professor in writing grant proposals, serving as a member of the program committee, and acting as an external reviewer for several top-tier security conferences and journals.
- Florida International University** (2015-2020)
  - **Research Assistant:** Worked on several complex cybersecurity and privacy-related research projects such as Privacy-Aware Wearable Continuous Authentication Framework, smart home user privacy, and privacy-aware secure data exchange methods.
  - **Teaching Assistant:** 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 the following classes: 1) EEL6787 - Network Security 2) EEE4717 & EEE5718 - IoT-CPS-Sec-S17 3) TCN4081 - Telecommunication Network Security 4) EEE4717 - Intro-IoT-CPS Security.

## Publications

### Journals

1. Nazli Tekin, **Abbas Acar**, Ahmet Aris, A. Selcuk Uluagac, and Vehbi Cagri Gungor. "Energy consumption of on-device machine learning models for IoT intrusion detection". Elsevier Internet of Things (IoT), 2023.
2. **Abbas Acar**, Shoukat Ali, Koray Karabina, Cengiz Kaygusuz, Hidayet Aksu, Kemal Akkaya, and A. Selcuk Uluagac. "A Lightweight Privacy-aware Continuous Authentication Protocol - PACA". ACM Transactions on Privacy and Security (TOPS), 2021.
3. **Abbas Acar**, Hidayet Aksu, Kemal Akkaya, and A. Selcuk Uluagac. "A Usable and Robust Continuous Authentication Framework using Wearables". IEEE Transactions on Mobile Computing (TMC), 2020.
4. **Abbas Acar**, Wenyi Liu, Raheem Bayeh, Kemal Akkaya, and Arif Selcuk Uluagac, "A privacy-preserving multifactor authentication system", Wiley Security and Privacy, 2019.
5. **Abbas Acar**, Hidayet Aksu, A. Selcuk Uluagac, and Mauro Conti, "A survey on homomorphic encryption schemes: Theory and implementation,". ACM Computing Surveys (CSUR), 2018.

## Conferences

1. **[NDSS '24] Abbas Acar**, 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.
2. **[USENIX Security '23]** Harun Oz, Ahmet Aris, **Abbas Acar**, Guliz Seray Tuncay, Leonardo Babun, and Selcuk Uluagac. "RøB: Ransomware over Modern Web Browsers". In the 32nd USENIX Security Symposium, 2023.
3. **[IEEE ICC '23]** Javier Franco, **Abbas Acar**, Ahmet Aris, and Selcuk Uluagac. "Forensic Analysis of Cryptojacking in Host-based Docker Containers Using Honeypots". IEEE International Conference on Communications (ICC), 2023.
4. **[WiSec '22]** Shrenik Bhansali, Ahmet Aris, **Abbas Acar**, Harun Oz, and A. Selcuk Uluagac. 2022. "A First Look at Code Obfuscation for WebAssembly". The 15th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec), 2022.
5. **[NDSS '22]** Ege Tekiner, **Abbas Acar**, and A. Selcuk Uluagac. "A Lightweight IoT Cryptojacking Detection Mechanism in Heterogeneous Smart Home Networks". Network and Distributed System Security Symposium (NDSS), 2022.
6. **[NDSS '22]** Leonardo Babun, Amit Kumar Sikder, **Abbas Acar**, 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.
7. **[IEEE DAPPS '21]** Ege Tekiner, **Abbas Acar**, A. Selcuk Uluagac, Engin Kirda, and Ali Aydin Selcuk. "In-Browser Cryptomining for Good: An Untold Story". IEEE International Conference on Decentralized Applications and Infrastructures (DAPPS), 2021.
8. **[IEEE EuroS&P '21]** Ege Tekiner, **Abbas Acar**, A. Selcuk Uluagac, Engin Kirda, and Ali Aydin Selcuk. "SoK: Cryptojacking Malware". IEEE European Symposium on Security and Privacy (EuroS&P), 2021.
9. **[WiSec '20] Abbas Acar**, Hossein Fereidooni, Tigist Abera, Amit Kumar Sikder, Markus Miettinen, Hidayet Aksu, Mauro Conti, Ahmad-Reza Sadeghi, Selcuk Uluagac. "Peek-a-Boo: I see your smart home activities, even encrypted!". The 13th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec), 2020.
10. **[WiSec '20]** Amit Kumar Sikder, Leonardo Babun, Z. Berkay Celik, **Abbas Acar**, Hidayet Aksu, Patrick McDaniel, Engin Kirda, and A. Selcuk Uluagac. "Kratos: Multi-User Multi-Device-Aware Access Control System for the Smart Home". The 13th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec), 2020.
11. **[ISC '19] Abbas Acar**, Long Lu, Engin Kirda, and A. Selcuk Uluagac, "An Analysis of Malware Trends in Enterprise Networks". The 22nd Information Security Conference (ISC), 2019.
12. **[CODASPY '19]** Z. Berkay Celik, **Abbas Acar**, Hidayet Aksu, Ryan Sheatsley, Patrick McDaniel, and A. Selcuk Uluagac, Curie: Policy-based Secure Data Exchange. ACM Conference on Data and Application Security and Privacy (CODASPY), 2019.
13. **[IEEE SPW '18] Abbas Acar**, Hidayet Aksu, Kemal Akkaya, and A. Selcuk Uluagac. WACA: Wearable-Assisted Continuous Authentication. In 39th IEEE Symposium on Security and Privacy Workshop (IEEE SPW), 2018.
14. **[IEEE CCWC '18]** Amit Kumar Sikder, **Abbas Acar**, Hidayet Aksu, Selcuk Uluagac, Kemal Akkaya, and Mauro Conti. IoT-enabled smart lighting systems for smart cities. In 2018 IEEE 8th Annual Computing and Communication Workshop and Conference (CCWC) (IEEE CCWC 2018), Las Vegas, USA, January 2018.
15. **[IEEE PAC '17] Abbas Acar**, Z. Berkay Celik, Hidayet Aksu, A. Selcuk Uluagac and Patrick McDaniel. "Achieving Secure and Differentially Private Computations in Multiparty Settings." IEEE Symposium on Privacy-Aware Computing (PAC). IEEE, 2017.

## Invention Disclosures

1. **A. Acar**, H. Aksu, K. Akkaya, and S. A. Uluagac, "Method for continuous user authentication with wearables," Sep. 11 2018, US Patent App. 15/674,133.

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## Professional Service

- Program Committee**
- USENIX Security: 2024
  - IEEE Symposium on Security and Privacy (S&P): 2024
  - ACM Conference on Computer and Communications Security (CCS): 2023
  - International Workshop on Cyber-Physical Systems Security, co-located with IEEE Conference on Communications and Network Security: 2016

- Web Chair**
- Design and create the website of ACM Wisec 2019

## Reviewer Role

1. ACM Computing Surveys (CSUR)
2. Elsevier Computer Networks (COMNET)
3. Future Generation Computer Systems (FGCS)
4. IEEE Access
5. IEEE Communications Surveys and Tutorials (COMST)
6. IEEE Transactions on Dependable and Secure Computing (TDSC)
7. IEEE Transactions on Information Forensics & Security (TIFS)
8. IEEE Transactions on Mobile Computing (TMC)
9. IEEE Transactions on Network and Service Management (TNSM)
10. IET Networks
11. Journal of Communications Software and Systems (JCOMSS)
12. Journal of Database Management (JDM)
13. Journal of Network and Computer Applications (JNCA)
14. Journal of Cybersecurity
15. MDPI Electronics
16. MDPI Sensors
17. Wiley Security and Privacy
18. IEEE Consumer Communications & Networking Conference (CCNC)
19. IEEE International Conference on Communications (ICC)
20. International Performance Computing and Communications Conference (IPCCC)
21. IEEE International Smart Cities Conference (ISC2)
22. IEEE Conference on Local Computer Networks (LCN)
23. IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
24. IEEE Vehicular Technology Conference (VTC)
25. IEEE Wireless Communications and Networking Conference (WCNC)

- Mentoring** ○ Mentored the following students:
1. Harun Oz (FIU, PhD, 2021-present)
  2. Yassine Mekdad (FIU, PhD, 2021-present)
  3. Derin Cayir (FIU, PhD, 2023-present)
  4. Haiyun Deng (FIU, PhD, 2023-present)
  5. Maryna Veksler (FIU, PhD, 2023-present)
  6. Carlo Mazzocca (University of Bologna, Visiting PhD, 2022-present)
  7. Andrea Martinez (FIU, MSc, 2022-present)
  8. Esteban Luquez (FIU, MSc, 2022-present)
  9. Javier Franco (FIU, MSc, 2022-2023)
  10. Ege Tekiner (FIU, MSc, 2019-2021)
  11. Eleonora Mancini (University of Padua, Visiting MSc, 2022-2023)
  12. Naor Vidal (FIU, Undergraduate, 2022-present)
  13. Seval Erkurt (FIU, Undergraduate, 2023-present)
  14. Alejandro Perez (FIU, Undergraduate, 2022-2023)
  15. Shrenik Bansali (Georgia Institute of Technology, REU program, 2021 summer)
  16. William Jang, (Amherst College, REU program, 2018 summer)
  17. Leandro Lopez Leon, (Carnegie Mellon University, REU program, 2018 summer)
  18. Nadezhda Bzhilyanskaya, (University of Maryland, REU program, 2017 summer)
  19. Chance Miller (FIU, REU program, 2023 summer)
  20. Kimberly Opara (Kean University, REU program, 2023 summer)
  21. Claire MacDonald (The University of Texas at El Paso, REU program, 2022 summer)
  22. Abel Mateo (FIU, REU program, 2022 summer)
  23. Catherine Betancourt (MDC Summer Research, 2023 summer)
  24. Jacob Mendelson (MDC Summer Research, 2023 summer)
  25. Jason Jabeck (MDC Summer Research, 2023 summer)
  26. Marco Pena (MDC Summer Research, 2023 summer)
  27. Starlin Jimenez (MDC Summer Research, 2023 summer)
  28. Analia Camarda, Microsoft IoT Lab Design Project
  29. Ifiok Dan-Abia, Microsoft IoT Lab Design Project
  30. Andy Carvajal, Microsoft IoT Lab Design Project
  31. Paulina Acosta, Microsoft IoT Lab Design Project

## Professional Activities

- Visiting Researcher** ○ Summer research visit to the group led by Prof. Engin Kirda at Northeastern University, MA, USA. (May-Aug 2018)
- Summer research visit to the SPRITZ group led by Prof. Mauro Conti at the University of Padua, Italy. (May-Aug 2017)
- Demo** ○ "WACA: Wearable-Assisted Continuous Authentication", eMerge Americas 2018 and 2019, Miami Beach, Florida, April 2018 and 2019.
- "WACA: Wearable-Assisted Continuous Authentication", The Next Horizon campaign, Florida International University.

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

## Awards and Achievements

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

## Languages

Turkish **Native**  
English **Fluent**

*Mother Tongue*  
*Daily practice, all work performed in English*

## References

Available upon request.

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