

MUSLUM OZGUR OZMEN

EDUCATION

JAN 2020 — PRESENT	Ph.D. in Computer Science 4.00/4.00 Advisor: Prof. Z. Berkay Celik Committee Members: Prof. Dongyan Xu, Prof. Xiangyu Zhang, Prof. Antonio Bianchi Purdue University West Lafayette, IN, USA
SEPT 2016 — JUNE 2018	MSc in Computer Science 3.96/4.00 Dr. Attila Altay Yavuz Oregon State University Corvallis, OR, USA
SEPT 2012 — JUNE 2016	BS in Electrical and Electronics Engineering 3.49/4.00 Bilkent University Ankara, Turkey

RESEARCH AND PROFESSIONAL EXPERIENCE

- Lead Graduate Student - Prof. Celik's Research Group, Purdue University** **2022 - Present**
- Conduct project meetings with five students
 - Provide students with mentoring and research guidance
- Cyber-Physical Systems Intern - Toyota Research Institute North America** **2023**
- Conducted research on the security of mobile robot controllers
 - Developed an optimization-guided falsification framework for control barrier function-based controllers

TEACHING EXPERIENCE

Guest Lecturer:

- CS426 - Computer Security, Purdue University Spring 2023
- CS590 - IoT & CPS Security, Purdue University Spring 2022

Teaching Assistant:

- CS496 - Mobile and Cloud Software Development, Oregon State University Winter 2018
- CS261 - Data Structures, CS/ECE578 - Cyber-security, Oregon State University Fall 2017
- CS492 - Mobile Software Development, Oregon State University Winter 2017

PUBLICATIONS

Peer-reviewed conference publications:

- C21 **Muslum Ozgur Ozmen**, Ruoyu Song, Habiba Farrukh and Z. Berkay Celik. *Evasion Attacks on Smart Home Physical Event Verification and Defenses*. Network and Distributed System Security Symposium (NDSS) 2023. (Acceptance Rate: 16.2%)
- C20 Habiba Farrukh*, **Muslum Ozgur Ozmen***, Kerem Ors and Z. Berkay Celik. *One Key to Rule Them All: Secure Group Pairing for Heterogeneous IoT Devices*. IEEE S&P 2023. – equally contributed.
- C19 **Muslum Ozgur Ozmen***, Habiba Farrukh*, Hyungsub Kim, Antonio Bianchi and Z. Berkay Celik. *Rethinking Secure Pairing in Drone Swarms*. VehicleSec 2023. – equally contributed.

- C19 Ruoyu Song, **Muslum Ozgur Ozmen**, Hyungsub Kim, Raymond Muller, Z. Berkay Celik, and Antonio Bianchi. *Discovering Adversarial Driving Maneuvers against Autonomous Vehicles*. Usenix Security 2023.
- C18 Hyungsub Kim, **Muslum Ozgur Ozmen**, Z. Berkay Celik, Antonio Bianchi and Dongyan Xu. *PatchVerif: Discovering Faulty Patches in Robotic Vehicles*. Usenix Security 2023.
- C17 Khaled Serag, Rohit Bhatia, Akram Faqih, **Muslum Ozgur Ozmen**, Vireshwar Kumar, Z. Berkay Celik, Dongyan Xu. *ZBCAN: A Zero-Byte CAN Defense System*. Usenix Security 2023.
- C16 **Muslum Ozgur Ozmen**, Xuansong Li, Andrew Chu, Z. Berkay Celik, Bardh Hoxha and Xiangyu Zhang. *Discovering IoT Physical Channel Vulnerabilities*. ACM Conference on Computer and Communications Security (ACM CCS) 2022. (Acceptance Rate: 22%)
- C15 Hyungsub Kim, **Muslum Ozgur Ozmen**, Z. Berkay Celik, Antonio Bianchi and Dongyan Xu. *PGPATCH: Policy-Guided Logic Bug Patching for Robotic Vehicles*. IEEE S&P 2022. (Acceptance Rate: 14.5%)
- C14 Andrew Chu, Arjun Arunasalam **Muslum Ozgur Ozmen** and Z. Berkay Celik. *Behind the Tube: Exploitative Monetization of Content on YouTube*. Usenix Security 2022. (Acceptance Rate: 17.2%)
- C13 Hyungsub Kim, **Muslum Ozgur Ozmen**, Antonio Bianchi, Z. Berkay Celik and Dongyan Xu. *PGFUZZ: Policy-Guided Fuzzing for Robotic Vehicles*. Network and Distributed System Security Symposium (NDSS) 2021. (Acceptance Rate: 15.2%)
- C12 Furkan Goksel*, **Muslum Ozgur Ozmen***, Michael Reeves, Basavesh Shivakumar and Z. Berkay Celik. *On the Safety Implications of Misordered Events and Commands in IoT Systems*. IEEE Workshop on the Internet of Safe Things (SafeThings) 2021. – equally contributed.
- C11 Rouzbeh Behnia, Attila A. Yavuz, **Muslum Ozgur Ozmen** and Tsz Hon Yuen. *Compatible Certificateless and Identity-Based Cryptosystems for Heterogeneous IoT*. International Conference on Information Security (ISC) 2020.
- C10 Efe U. A. Seyitoglu, Attila A. Yavuz and **Muslum Ozgur Ozmen**. *Compact and Resilient Cryptographic Tools for Digital Forensics*. IEEE Conference on Communications and Network Security (IEEE CNS) 2020. (Best Paper Award Finalist)
- C9 **Muslum Ozgur Ozmen**, Attila A. Yavuz and Rouzbeh Behnia. *Energy-Aware Digital Signatures for Embedded Medical Devices*. IEEE Conference on Communications and Network Security (IEEE CNS) 2019.
- C8 Rouzbeh Behnia, **Muslum Ozgur Ozmen** and Attila A. Yavuz. *ARIS: Authentication for Real-Time IoT Systems*. International Conference on Communications (IEEE ICC) 2019.
- C7 **Muslum Ozgur Ozmen**, Rouzbeh Behnia and Attila A. Yavuz. *Fast Authentication from Aggregate Signatures with Improved Security*. Financial Cryptography and Data Security (FC) 2019. (Acceptance Rate: 21.9%)
- C6 Rouzbeh Behnia, **Muslum Ozgur Ozmen**, Attila A. Yavuz and Mike Rosulek. *TACHYON: Fast Signatures from Compact Knapsack*. ACM Conference on Computer and Communications Security (ACM CCS) 2018. (Acceptance Rate: 16.6%)
- C5 **Muslum Ozgur Ozmen** and Attila A. Yavuz. *Dronecrypt-An Ultra-Low Energy Cryptographic Framework for Small Aerial Drones*. IEEE MILCOM 2018.
- C4 **Muslum Ozgur Ozmen** and Attila A. Yavuz. *Compact Energy and Delay-Aware Authentication*. IEEE Conference on Communications and Network Security (IEEE CNS) 2018.
- C3 **Muslum Ozgur Ozmen**, Thang Hoang and Attila A. Yavuz. *Forward-Private Dynamic Searchable Symmetric Encryption with Efficient Search*. International Conference on Communications (IEEE ICC) 2018.

- C2 **Muslum Ozgur Ozmen** and Attila A. Yavuz. *Low-Cost Standard Public Key Cryptography Services for Wireless IoT Systems*. Workshop on Internet of Things Security and Privacy (IoT S&P) 2017 (Affiliated with ACM CCS).
- C1 Rouzbeh Behnia, Attila A. Yavuz and **Muslum Ozgur Ozmen**. *High-Speed High-Security Public Key Encryption with Keyword Search*. IFIP Annual Conference on Data and Applications Security and Privacy (DBSec) 2017.

Peer-reviewed journal publications:

- J3 Attila A. Yavuz and **Muslum Ozgur Ozmen**. *Ultra Lightweight Multiple-time Digital Signature for the Internet of Things Devices*. IEEE Transactions on Services Computing (IEEE TSC), 2019.
- J2 Thang Hoang, **Muslum Ozgur Ozmen**, Yeongjin Jang and Attila A. Yavuz. *Hardware-Supported ORAM in Effect: Practical Oblivious Search and Update on Very Large Dataset*. Proceedings on Privacy Enhancing Technologies (PoPETS), 2019. (Acceptance Rate: 22%)
- J1 Rouzbeh Behnia, **Muslum Ozgur Ozmen** and Attila A. Yavuz. *Lattice-Based Public Key Encryption with Keyword Search from Experimental Perspectives*. IEEE Transactions on Dependable and Secure Computing (IEEE TDSC), 2018.

PATENTS

- P3 Rouzbeh Behnia, **Muslum Ozgur Ozmen** and Attila A. Yavuz. *Efficient Identity-Based and Certificateless Cryptosystems*, US Patent 10,673,625
- P2 Attila A. Yavuz, **Muslum Ozgur Ozmen** and Rouzbeh Behnia. *Energy-aware Digital Signatures*, US Patent 10,547,455
- P1 Thang Hoang, **Muslum Ozgur Ozmen**, and Attila A. Yavuz *Forward-Private Dynamic Searchable Symmetric Encryption with Efficient Search*, US Patent 10,922,273

PRESENTATIONS

Invited Talks:

- I2 *Compositional Safety and Security Reasoning in IoT Environments*. University of California Santa Cruz. Virtual, February 2023.
- I1 *Lightweight, Delay-Aware and Scalable Cryptographic Services for Smart-Grid Systems*. Cyber Resilient Energy Delivery Consortium (CREDC) Pacific Northwest Industry Workshop. Richland, WA, USA, November 2017.

Conference and Workshop Talks:

- T7 *Evasion Attacks on Smart Home Physical Event Verification and Defenses*. Network and Distributed System Security Symposium (NDSS). San Diego, CA, USA, March 2023.
- T6 *Discovering IoT Physical Channel Vulnerabilities*. ACM Conference on Computer and Communications Security. Los Angeles, CA, USA, November 2022.
- T5 *Energy-Aware Digital Signatures for Embedded Medical Devices*. IEEE Conference on Communications and Network Security. Washington, DC, USA, June 2019.
- T4 *Fast Authentication from Aggregate Signatures with Improved Security*. Financial Cryptography and Data Security. St Kitts and Nevis, February 2019.
- T3 *TACHYON: Fast Signatures from Compact Knapsack*. ACM Conference on Computer and Communications Security. Toronto, ON, Canada, October 2018.

- T2 *Forward-Private Dynamic Searchable Symmetric Encryption with Efficient Search*. IEEE International Conference on Communications. Kansas City, MO, USA, May 2018.
- T1 *Low-Cost Standard Public Key Cryptography Services for Wireless IoT Systems*. Workshop on Internet of Things Security and Privacy. Dallas, TX, USA, November 2017.

STUDENT RESEARCH ADVISING

Ben Chen	MSc Computer Science, Purdue University	2022 - 2023
Andrew Chu	BS Computer Science, Purdue University → Ph.D. University of Chicago	2020-2021
Ruoyu Song	BS Computer Science, Purdue University → Ph.D. Purdue University	2020
Furkan Goksel	BS Computer Science, METU → Picus Security	Summer 2020
Kerem Ors	BS Computer Science, METU → Ph.D. Purdue University	Summer 2020

SERVICES

Program Committee Member:

- SmartGridComm 2023
- CPSIoTSec 2023
- SafeThings 2023
- RICSS 2023

Reviewer:

- ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT/UbiComp) - 2023
- IEEE IEEE Transactions on Information Forensics and Security - 2023
- ACM Transaction on Internet of Things - 2023
- IEEE Internet of Things Journal - 2022
- Journal of Complex & Intelligent Systems - Springer, 2021
- IEEE Transactions on Services Computing - 2020
- IEEE Access - 2019
- Journal of Ambient Intelligence and Humanized Computing - Springer, 2018

External Reviewer:

- IEEE S&P 2023, 2024
- Usenix Security 2022, 2023
- NDSS 2022, 2023
- CCS 2021
- ACSAC 2017, 2018, 2019, 2022
- WWW 2019
- DBSec 2017, 2018, 2019

AWARDS AND HONORS

- Recipient of NDSS 2023 Travel Grant (1,550\$).
- IEEE CNS 2020 Best Paper Award Finalist
- Recipient of IEEE CNS 2019 Travel Grant (1,250\$).
- Turkish Educational Foundation, Outstanding Success Scholarship (awarded to 50 students nationwide), September 2013 — June 2016.

REFERENCES

Available on Request