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:

C22 **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%)

C21 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.

C20 **Muslum Ozgur Ozmen***, Habiba Farrukh*, Hyungsub Kim, Antonio Bianchi and Z. Berkay Celik. *Rethinking Secure Pairing in Drone Swarms.* VehicleSec 2023. – equally contributed.

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https://github.com/ozgurozmen · https://ozgurozmen.github.io/

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