

# MERT D. PESÉ

University of Michigan, Ann Arbor | Ph.D. Candidate

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## PROFESSIONAL PROJECTS (Selection)

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### Security Analysis of Android Automotive [WCX'20]

Conducted first high-level security analysis of novel Android Automotive platform on IVI unit. Demonstrated three proof-of-concept attacks and extended recommendations.

### LibreCAN: Automated CAN Message Reverse Engineering Framework [CCS'19]

Developed a tool to automatically reverse engineer CAN traffic recorded from vehicles and generate a DBC file.

### Automotive Privacy: Attacks and Defenses [WCX'19,PETS'20,ongoing]

Surveyed the field of privacy-related attacks on vehicular data, analyzed privacy regulations and existing threat models and designed an attack. Designing and implementing privacy-protection scheme for vehicular data.

### Automotive Context-Aware Intrusion Detection Using Neural Networks [escar'17]

Designed a context-aware intrusion detection (CAID) to recognize chip tuning on automotive ECUs with a very high probability using an unsupervised Artificial Neural Network (ANN).

### Design and Evaluation of Firewall for Ethernet Domain Controller E/E-Architecture [WCX'17]

Designed and implemented a firewall for Ethernet domain controller architecture in HW (FPGA) and SW (ECU). Evaluated several performance metrics (e.g., latency, memory consumption) based on real traffic model.

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## INTERESTS & SKILLS

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**Interests:** Vehicle Cybersecurity, Intrusion Detection Systems, Privacy, Automotive Ethernet, Threat Modeling

**Advanced Knowledge:** CAN, CANoe, AUTOSAR, Reverse Engineering, SOTA Updates, Android Automotive

**Programming Language:** C/C++, Python, MATLAB, Java, x86, CAPL, VHDL

**Languages:** German (native), Turkish (native), English (fluent), French (proficient)

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## EMPLOYMENT

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### Harman International

*Cybersecurity Intern, Automotive Product Security*

Novi, MI

May 2019–Aug. 2019

### General Motors

*Cybersecurity Research Intern, Electrical & Controls Systems Architecture Team*

Warren, MI

Jun. 2018–Aug. 2018

### Audi

*Researcher, Audi Electronics Venture*

Ingolstadt, Germany

Apr. 2016–Oct. 2016

### Audi

*Cybersecurity Intern, Audi Electronics Venture*

Ingolstadt, Germany

Jan. 2016–Mar. 2016

### University of Michigan Transportation Research Institute

*Automotive Security Intern, Automotive Cybersecurity & Privacy Group*

Ann Arbor, MI

Sep. 2015–Dec. 2015

### Bertrandt

*Automotive Ethernet Intern, In-Vehicle Networks and Gateway Team*

Ingolstadt, Germany

Mar. 2015–Aug. 2015

**BFFT**  
*Embedded Software Design Intern, Vehicle Interface Development Team*

Ingolstadt, Germany  
Aug. 2013–Oct. 2013

**Panasonic**  
*Electrical Engineering Intern, Relays Testing Laboratory*

Pfaffenhofen, Germany  
Aug. 2012–Sep. 2012

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## EDUCATION

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**University of Michigan, Ann Arbor**

Ann Arbor, MI

Ph.D in Computer Science & Engineering advised by Prof. Kang Shin

Jan. 2017–Apr. 2021  
(expected)

**Technische Universität München**

Munich, Germany

M.S. in Electrical Engineering and Information Technology (*Highest Distinctions*)

Dec. 2016

**Technische Universität München**

Munich, Germany

B.S. in Computer Science

Jul. 2015

**Technische Universität München**

Munich, Germany

B.S. in Electrical Engineering and Information Technology (*Highest Distinctions*)

Jul. 2014

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## PUBLICATIONS (Selection)

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1. **Mert D. Pesé**, Xiaoying Pu, and Kang G. Shin. “SPy: Car Steering Reveals Your Trip Route!,” *Proceedings on Privacy Enhancing Technologies 2020 (PETS’20)*, July 2020.
2. **Mert D. Pesé**, Kang G. Shin, Josiah Bruner, and Amy Chu, “Security Analysis of Android Automotive,” *SAE Technical Paper 2020-01-1295 (WCX’20)*, Apr. 2020.
3. **Mert D. Pesé**, Troy Stacer, C. Andrés Campos, Eric Newberry, Dongyao Chen, and Kang G. Shin. “LibreCAN: Automated CAN Message Translator,” *2019 ACM SIGSAC Conference on Computer and Communications Security (CCS ’19)*, Nov. 2019.
4. **Mert D. Pesé** and Kang G. Shin, “Survey of Automotive Privacy Regulations and Privacy-Related Attacks,” *SAE Technical Paper 2019-01-0479, 2019 (WCX’19)*, Mar. 2019.
5. Armin Wasicek, **Mert D. Pesé**, Andre Weimerskirch, Liza Burakova and Karan Singh, “Context-aware Intrusion Detection in Automotive Control Systems,” *5th escar USA (escar’17)*, Jun. 2017.
6. **Mert D. Pesé**, Karsten Schmidt and Harald Zweck, “Hardware/Software Co-Design of an Automotive Embedded Firewall,” *SAE Technical Paper 2017-01-1659 (WCX’17)*, Mar. 2017.

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## AWARDS & HONORS

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**Rackham Conference Travel Grant**

2019

University of Michigan Rackham Graduate School

**ACM MobiCom Student Travel Grant**

2017

ACM SIGMOBILE

**National Scholarship for 0.5% of all students**

2015 - 2018

German Academic Scholarship Foundation

**Deutschlandstipendium**

2013, 2014

Federal Ministry of Education and Research (Germany)

**Fulbright Scholarship**

2014

Fulbright Commission