Sara Rampazzi

Department of Electrical Engineering
and Computer Science

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University of Michigan
Computer Science and Engineering
Bob & Betty Beyster Building
2260 Hayward Street
Ann Arbor, MI 48109-2121

Research areas

Embedded hardware security, embedded systems design, modeling, and simulation with application to medical devices, automotive, and IoT

Education

PhD in Electronics, Computer Science and Electrical Engineering
University of Pavia (Italy), **2014***.*

MEng in Computer Science Engineering
University of Pavia (Italy), **2010***.*

BS in Computer Science Engineering
University of Pavia (Italy), **2008***.*

Academic positions

Incoming Assistant Professor **Jan 2021**
Computer & Information Science & Engineering
University of Florida

Research Investigator **Feb 2018-*present***
Electrical Engineering & Computer Science,
University of Michigan

Intermittent Lecturer
Electrical Engineering & Computer Science, **Jan 2019-Jan 2020**
University of Michigan

Affiliate Researcher
Electrical Engineering & Computer Science, **Aug 2017-Jan 2018**
University of Michigan

Postdoc fellow **2014**
Computer Science Engineering,
University of Pavia

Research experience

Senior personnel on THAW **2018-*present***
University of Michigan

Principal Researcher for MCity PASS project **2018-*present***
University of Michigan

Visiting researcher **Spring 2014**
Univ. de Las Palmas de Gran Canaria *(Spain)*

Teaching experience

Lecturer **Winter 2019**
Course: EECS 496 - Major Design Experience Professionalism
Dept. of Electrical Engineering and Computer Science, University of Michigan

Instructor of record **2013-2014**
Course: C coding
Department of Mathematics, University of Pavia

Instructor of record **2010-2012**
Course: Introduction to Computer Systems II
Computer Science Engineering, University of Pavia

Teaching Assistant **2007-2010**
Course: Introduction to Computer Systems
Computer Science Engineering, University of Pavia

Industry experience

Firmware developer for LTE systems **2016-2017**
Azcom Technology
Client: **Blue Danube Inc.**

Software engineer consultant **2015-2016**
Alten Italia
Client: **Leonardo S.p.A.**
Client: **Magneti Marelli (Fiat Chrysler Automobiles Group)**

Refereed conference publications

* co-first and corresponding author

° corresponding (senior) author

Takeshi Sugawara, Ben Cyr, Sara Rampazzi°, Daniel Genkin, Kevin Fu, **"Light Commands: Laser-Based Audio Injection on Voice-Controllable Systems"**, in 29th USENIX Security Symposium (USENIX Security 20), August 2020.

Sara Rampazzi*, Yazhou Tu, Bin Hao, Angel Rodriguez, Kevin Fu, and Xiali Hei, "**Trick or Heat? Attack on Amplification Circuits to Abuse Critical Temperature Control Systems**", in *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (CCS),* November 2019

Yulong Cao, Chaowei Xiao, Benjamin Cyr, Yimeng Zhou, Won Park, Sara Rampazzi°, Qi Alfred Chen, Kevin Fu, Z. Morley Mao, "**Adversarial Sensor Attack on LiDAR-based Perception in Autonomous Driving**", in Proceedings of the 2019 *ACM SIGSAC Conference on Computer and Communications Security (CCS),* November 2019

Connor Bolton, Sara Rampazzi, Chaohao Li, Andrew Kwong, Wenyuan Xu, Kevin Fu, "**Blue Note: How Intentional Acoustic Interference Damages Availability and Integrity in Hard Disk Drives and Operating Systems**". In Proceedings of the *39th Annual IEEE Symposium on Security and Privacy*, May 2018.

Sara Rampazzi, Francesco Leporati, Giovanni Danese, Marabelli Franco, Andrea Valsesia, "**A Novel Portable Surface Plasmon Resonance Based**

Imaging Instrument for On-Site Multi-Analyte Detection". In *Federated Conference on Computer Science and Information Systems (FedCSIS '13),* September 2013.

Sara Rampazzi, Giovanni Danese, Lucia Fornasari, Francesco Leporati, Franco Marabelli, Nelson Nazzicari, Andrea Valsesia, "**Lab On Chip: Portable Optical Device for On-Site Multi-parametric Analysis**". In *IEEE Euromicro Conference on Digital System Design (Euromicro DSD'13),* 4-6 Sept 2013, pp. 807-810.

Refereed journal publications

Simone Marini, Francesca Vitali, Sara Rampazzi, Andrea Demartini, Tatsuya Akutsu, "**Protease target prediction via matrix factorization**". In *Bioinformatics*, 29 Aug. 2018, bty746.

Sara Rampazzi, Giovanni Danese, Francesco Leporati, Franco Marabelli, "A **Localized Surface Plasmon Resonance-Based Portable Instrument for Quick On-Site Biomolecular Detection**". In *IEEE Transactions on Instrumentation and Measurement*, Vol. 65 Is. 2, 1 Dec. 2015, pp. 317-327.

Posters

Yan Long, Alexander Curtiss, Sara Rampazzi, Josiah Hester, Kevin Fu, "**Automating Decontamination of N95 Masks for Frontline Workers in the COVID-19 Pandemic**". In the Poster Session of the ACM Conference on Embedded Networked Sensor Systems (Sensys 2020), Nov 2020.

Angel Rodriguez, Sara Rampazzi and Kevin Fu, "**IoT Two Factor Neurometric Authentication System using Wearable EEG**". In the Poster Session of the IEEE Workshop on the Internet of Safe Things (SafeThings 2019), May 2019.

Patents issued

Sara Rampazzi, Giovanni Danese, Lucia Fornasari, Francesco Leporati, Franco Marabelli, Nelson Nazzicari, Andrea Valsesia "**Detection device of molecular compounds based on Surface Plasmon Resonance**". European patent #IT2013MI01345 20130806. Priority 2013. Issued 2015.

Invited talks lectures and seminars

"Security & Perception Systems" Guest lecture, University of Massachusetts Amherst, 10/20/2020

"EMI Attacks on Analog Sensors" Guest lecture, University of Louisiana Lafayette, 09/21/2020

"Cybersecurity In The Internet Of Medical Things Era: Research And Challenges", Invited Seminar, Archimedes 2020 Leadership Workshop Webinar Series, 06/03/2020

"I Always Feel Like Someone Is Listening to Me: Voice Assistants, the Internet of Things, and Privacy", Invited talk and discussion panel, 2020 Privacy@Michigan Symposium, 01/28/2020

"Protecting Cyber-physical Systems from Physical Attacks", Invited seminar, University of California Santa Barbara, 05/23/2019

"Cybersecurity in Hospitals: comparing EU and US strategies" Seminar & discussion panel in second level postgraduate Master in Cyberlaw and Policies for Digital Innovation, University of Milan Bicocca, 12/19/2018

"Cybersecurity and Implantable Devices". In Women in Electrophysiology, Medical Education - Medtronic Accademy, 10/13/2018

"Fear The Hacked IoT Medical Devices: the apocalypse is already happening, and no one noticed?". In Proceedings of USENIX 2018 Summit on Hot Topics in Security (HotSec 18), 08/14/2018

"Sensor Security in Cyber-Physical Systems", seminar for graduate students of the Ph.D. School of Electrical and Electronics Engineering and Computer Science, University of Pavia, 07/15/2018

"Portable Lab-on-chips for biomolecular detection", seminar in first level postgraduate Master and Specialization Course in Clinical Engineering, University of Pavia, 04/12/2016

Service to profession

Co-Chair:
2nd Annual Embedded System Workshop (EmSec 2020) at University of Michigan

Session Chair:
ACM CCS 2020 Conference on Computer and Communications Security

PC Member:
IEEE Workshop on the Internet of Safe Things (SafeThings 2021)
30th USENIX Security Symposium (USENIX 2021)
DYnamic and Novel Advances in Machine Learning and Intelligent Cyber Security Workshop (DYNAMICS 2020)
ACM CCS 2020 Conference on Computer and Communications Security
14th USENIX Workshop on Offensive Technologies 2020 (WOOT '20)
IEEE Workshop on the Internet of Safe Things (SafeThings 2019)

Organization Committee Member:
Euromicro SEAA 2014/ DSD 2014 Conference

Peer Reviewer:
ACM Transactions on Privacy and Security; 2019 – *present*
ACM Transactions on Computing for Healthcare; 2019 - *present*
Science Magazine; 2018 - *present*
Sensors; 2016 - *present*

NSF SaTC Grant Proposal Review Panelist

Consultant for Archimedes, Center of Medical Device Security

Mentoring & Advising

Computer Engineering Undergraduate Advisor
University of Michigan, Winter 2019

Mentor for the First Generation Engineering Program
University of Michigan, 2018-*present*

Society of Women Engineers Summer Camp mentor
University of Michigan, Summer 2018

IEEE Student Branch Computer Science Area Advisor
IEEE Pavia Student Branch, Region 8, Italian section,
University of Pavia, *2011-2014*.

Technical Skills

PLs:	Matlab, C, Perl, Java
Design/Modelling/ Simulation tools:	Matlab-Simulink, COMSOL Multiphysics, StateFlow, IBM Rational Rhapsody.
Programming/ Validation/Testing tools:	IBM Rational Logiscope, GNURadio, QA System Cantata++, dSpace Target Link, MPLAB, MikroC for PIC and ARM

Languages

Italian	Native speaker
English	Fluent
Spanish	Fluent