Sara Rampazzi

Department of Electrical Engineering
and Computer Science

University of Michigan
Computer Science and Engineering
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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	**Research Investigator** Electrical Engineering & Computer Science, University of Michigan	**Feb 2018-*present***
	Intermittent Lecturer Electrical Engineering & Computer Science, University of Michigan	**Jan 2019-*present***
	Affiliate Researcher Electrical Engineering & Computer Science, University of Michigan	**Aug 2017-Jan 2018**
	Postdoc fellow Computer Science Engineering, University of Pavia	**2014**
Research experience	**Principal Researcher for MCity PASS project** University of Michigan	**2018-*present***
	Senior personnel on THAW University of Michigan	**2018-*present***
	Visiting researcher Univ. de Las Palmas de Gran Canaria *(Spain)*	**Spring *2014***
Teaching experience	**Lecturer** *Course: EECS 496 - Major Design Experience Professionalism* Dept. of Electrical Engineering and Computer Science, University of Michigan	**Winter 2019**

	Instructor of record	**2013-2014**

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

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 Machine Learning on LIDAR-based Object Detection 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, <u>Sara Rampazzi</u>, Andrea Demartini, Tatsuya Akutsu, "**Protease target prediction via matrix factorization**". In *Bioinformatics*, 29 Aug. 2018, bty746. <u>Sara Rampazzi</u>, Givanni 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.
Preprints	Takeshi Sugawara, Ben Cyr, <u>Sara Rampazzi</u>, Daniel Genkin, Kevin Fu, **"Light Commands: Laser-Based Audio Injection on Voice-Controllable Systems"**, November 2019
Posters	Yulong Cao, Chaowei Xiao, Benjamin Cyr, Yimeng Zhou, Won Park, <u>Sara Rampazzi</u>, Qi Alfred Chen, Kevin Fu, Z. Morley Mao, "**Adversarial Sensor Attack on LIDAR-based Perception in Autonomous Driving**", Accepted to AdvMLCV2019 (CVPR 2019 Workshop on Adversarial Machine Learning in Real-World Computer Vision Systems), June 2019. Angel Rodriguez, <u>Sara Rampazzi</u> 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. Connor Bolton, <u>Sara Rampazzi</u>, 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 the Poster Session of the 39th Annual IEEE Symposium on S&P, May 2018.
Patents issued	<u>Sara Rampazzi</u>, 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 and seminars	"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	**Program Committee Member of the ACM Conference on Computer and Communications Security (ACM CCS 2020)**
	Program Committee Member of SafeThings 2019 - IEEE Workshop on the Internet of Safe Things Co-located with 2019 IEEE Symposium on Security and Privacy
	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