

Sara Rampazzi

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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-Jan 2020
	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
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	Senior personnel on THAW University of Michigan	2018-present
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	Visiting researcher Univ. de Las Palmas de Gran Canaria (<i>Spain</i>)	Spring 2014
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Teaching experience	Lecturer <i>Course: EECS 496 - Major Design Experience Professionalism</i> Dept. of Electrical Engineering and Computer Science, University of Michigan	Winter 2019
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	Instructor of record <i>Course: C coding</i> Department of Mathematics, University of Pavia	2013-2014
	Instructor of record <i>Course: Introduction to Computer Systems II</i> Computer Science Engineering, University of Pavia	2010-2012
	Teaching Assistant <i>Course: Introduction to Computer Systems</i> Computer Science Engineering, University of Pavia	2007-2010
Industry experience	Firmware developer for LTE systems <i>Azcom Technology</i> Client: Blue Danube Inc.	2016-2017
	Software engineer consultant <i>Alten Italia</i> Client: Leonardo S.p.A. Client: Magneti Marelli (Fiat Chrysler Automobiles Group)	2015-2016
Refereed conference publications	<p><u>Sara Rampazzi</u>[*], 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 <i>Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (CCS)</i>, November 2019</p>	
[*] co-first and corresponding author	<p>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”, in <i>Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (CCS)</i>, November 2019</p>	
[°] corresponding (senior) author	<p>Connor Bolton, <u>Sara Rampazzi</u>, Chaohao Li, Andrew Kwong, Wenyan Xu, Kevin Fu, “Blue Note: How Intentional Acoustic Interference Damages Availability and Integrity in Hard Disk Drives and Operating Systems”. In <i>Proceedings of the 39th Annual IEEE Symposium on Security and Privacy</i>, May 2018.</p>	
	<p><u>Sara Rampazzi</u>, Francesco Leporati, Giovanni Danese, Marabelli Franco, Andrea Valsesia, “A Novel Portable Surface Plasmon Resonance Based Imaging Instrument for On-Site Multi-Analyte Detection”. In <i>Federated Conference on Computer Science and Information Systems (FedCSIS '13)</i>, September 2013.</p>	
	<p><u>Sara Rampazzi</u>, 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 <i>IEEE Euromicro Conference on Digital System Design (Euromicro DSD'13)</i>, 4-6 Sept 2013, pp. 807-810.</p>	

Refereed journal publications	<p>Simone Marini, Francesca Vitali, Sara Rampazzi, Andrea Demartini, Tatsuya Akutsu, “Protease target prediction via matrix factorization”. In <i>Bioinformatics</i>, 29 Aug. 2018, bty746.</p> <p>Sara Rampazzi, Giovanni Danese, Francesco Leporati, Franco Marabelli, “A Localized Surface Plasmon Resonance-Based Portable Instrument for Quick On-Site Biomolecular Detection”. In <i>IEEE Transactions on Instrumentation and Measurement</i>, Vol. 65 Is. 2, 1 Dec. 2015, pp. 317-327.</p>
Preprints	<p>Takeshi Sugawara, Ben Cyr, Sara Rampazzi, Daniel Genkin, Kevin Fu, “Light Commands: Laser-Based Audio Injection on Voice-Controllable Systems”, November 2019</p>
Posters	<p>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.</p> <p>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 the Poster Session of the 39th Annual IEEE Symposium on S&P, May 2018.</p>
Patents issued	<p>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.</p>
Invited talks and seminars	<p>“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</p> <p>“Protecting Cyber-physical Systems from Physical Attacks”, Invited seminar, University of California Santa Barbara, 05/23/2019</p> <p>“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</p> <p>“Cybersecurity and Implantable Devices”. In Women in Electrophysiology, Medical Education - Medtronic Accademy, 10/13/2018</p> <p>“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</p> <p>“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</p>

“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

PC Member:

ACM CCS 2020 Conference on Computer and Communications Security
14th USENIX Workshop on Offensive Technologies 2020 (WOOT '20)
SafeThings 2019 IEEE Workshop on the Internet of Safe Things

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