

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

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

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

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

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

Senior personnel on THAW **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 <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, Givanni 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>“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> <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</p>

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 - <i>present</i> ACM Transactions on Computing for Healthcare; 2019 - <i>present</i> Science Magazine; 2018 - <i>present</i> Sensors; 2016 - <i>present</i>	
	NSF SaTC Grant Proposal Review Panelist	
Mentoring & Advising	Consultant for Archimedes, Center of Medical Device Security	
	Computer Engineering Undergraduate Advisor University of Michigan, Winter 2019	
	Mentor for the First Generation Engineering Program University of Michigan, 2018- <i>present</i>	
	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