Sara Rampazzi
Department of Computer and Information Science and Engineering

University of Florida
Florida Institute for Cybersecurity Research (FICS)
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Gainesville, FL 32603

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sararampazzi.com

Research areas

Cyber-physical system 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**.

Grants and awards

PI:
Facebook Award Explorations of Trust in AR, VR, and Smart Devices, 2020

Co-PI:
NSF Grant Award #2031077: RAPID: SaTC: COVID19: Science of using wirelessly powered sensors to quickly scale up verifiable decontamination of individual N95 respirator masks, 2020

Medtronic Outstanding Research Contributor: For researchers recognized for the value of their contributions to the security of Medtronic medical devices - https://global.medtronic.com/xg-en/product-security/outstanding-research-contributors.html

Academic positions

Assistant Professor — **Jan 2021-Present**
Computer & Information Science & Engineering
University of Florida

Research Investigator — **Feb 2018-Dec 2020**
Electrical Engineering & Computer Science,
University of Michigan

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

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

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

Research experience

Senior personnel on THAW — **2018-2021**
University of Michigan

Principal Researcher for MCity PASS project **2018-2020**
University of Michigan

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

Teaching experience

Instructor **Fall 2021**
Course: CIS4930/6930 - Special Topics in CISE: Cyber-physical System Security
Dept. of Computer and Information Science and Engineering, University of Florida

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

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), August 2020 (Acc. Rate 16.1%).

* 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 (Acc. Rate 17%).

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 (Acc. Rate 17%).

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 (Acc. Rate 11.5%).

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),* Sept 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

Yan Long, Sara Rampazzi, Takeshi Sugawara, Kevin Fu, "**Protecting COVID-19 Vaccine Transportation and Storage from Analog Cybersecurity Threats**", In Biomedical Instrumentation & Technology 55, no. 3, Oct 2021.

Yan Long, Alexander Curtiss, Sara Rampazzi, Josiah Hester, Kevin Fu, "**VeriMask: Facilitating Decontamination of N95 Masks in the COVID-19 Pandemic: Challenges, Lessons Learned, and Safeguarding the Future**", In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMWUT), Sept 2021.

Simone Marini, Francesca Vitali, Sara Rampazzi, Andrea Demartini, Tatsuya Akutsu, "**Protease target prediction via matrix factorization**". In Bioinformatics, 29 Aug. 2018, bty746 (IF 5.610).

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 (IF 3.658).

Journal publications as member of the N95Decon Consortium

Loïc Anderegg, John Doyle, Margaret L Gardel, Amit Gupta, Christian Hallas, Yuri Lensky, Nancy G Love, Bronwyn A Lucas, Edward Mazenc, Cole Meisenhelder, Ajay Pillarisetti, Daniel Ranard, Allison H Squires, Jessica Vechakul, Nathaniel B Vilas, Stuart Williams, Daniel Wilson, Tyler N Chen, N95DECON Consortium, "**Heat and Humidity for Bioburden Reduction of N95 Filtering Facepiece Respirators**", Applied Biosafety, Jan 2021 (IF 0.72).

Samantha M Grist, Alisha Geldert, Anjali Gopal, Alison Su, Halleh B Balch, Amy E Herr, N95DECON Consortium "**Current Understanding of Ultraviolet-C Decontamination of N95 Filtering Facepiece Respirators**", Applied Biosafety, Jan 2021 (IF 0.72).

Sylvia J Smullin, Branden D Tarlow, N95DECON Consortium, "**Room Temperature Wait and Reuse for Bioburden Reduction of SARS-CoV-2 on N95 Filtering Facepiece Respirators**", Applied Biosafety, Jan 2021 (IF 0.72).

David Rempel, John Henneman, James Agalloco, Jill Crittenden, N95DECON Consortium "**Hydrogen Peroxide Methods for Decontaminating N95 Filtering Facepiece Respirators**", Applied Biosafety, Jan 2021, (IF 0.72).

David Rempel, N95DECON Consortium, "**Scientific Collaboration During the COVID-19 Pandemic: N95DECON.org**". In Annals of Work Exposures and Health, June 2020, (IF 1.960).

Posters & Demo papers

Yulong Cao, Jiaxiang Ma, Kevin Fu, Sara Rampazzi, Z. Morley Mao, "**Automated Tracking System For LiDAR Spoofing Attacks On Moving Targets**". In the Demo

Session of Automotive and Autonomous Vehicle Security (AutoSec) Workshop 2021, Feb 2021. (**Best Demo Award Runner-up**)

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 (**Best Poster Award Runner-up**).

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

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 #ITMI20131345A1. Priority 2013. Published 2015.

Invited talks lectures and seminars

"Sensor Security", Sara Rampazzi, Invited Keynote at 15th IEEE Workshop on Offensive Technologies (WOOT '21), 27/05/2021

"Autonomous Vehicle Security", Invited talk, Lansing Information Systems Security Association (ISSA) Meeting, 12/17/2020

"Wirelessly sensor technology for verifiable decontamination of N95 masks", COVID-19 Research Lightning Round Webinar, COVID Information Commons, 10/16/2020

"Light Commands: Hacking Voice Assistants with Lasers", talk, BlackHat Europe 2020, 12/10/2020

"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". Invited talk 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

Conferences PC Member:
- IEEE Workshop on the Internet of Safe Things (SafeThings) 2019, 2021
- USENIX Security Symposium (USENIX), 2021, 2022
- ACM Conference on Computer and Communications Security (CCS) 2020
- USENIX Workshop on Offensive Technologies (WOOT) 2020, 2021
- IEEE SecDev 2021
- DYnamic and Novel Advances in Machine Learning and Intelligent Cyber Security Workshop (DYNAMICS), 2020

N95Decon.org Consortium member:
N95Decon is a volunteer collective of scientists, with the goal of reviewing, publishing, and disseminating scientific information about N95 masks decontamination to help inform decisions about N95 decontamination and reuse - https://www.n95decon.org/

Organization Committee member:
Euromicro SEAA 2014/ DSD 2014 Conference

Journal Peer Reviewer (https://publons.com/researcher/1223452/sara-rampazzi/):
PLOS ONE; ACM Transactions on Privacy and Security;
ACM Transactions on Computing for Healthcare; Science Magazine;
IEEE Security & Privacy Magazine, Sensors;

NSF SaTC Grant Proposal Review Panelist

Mentoring & Advising

Inclusion, Diversity, Equity and Access Committee Member
University of Florida, CISE Dept, 2021

Computer Engineering Undergraduate Advisor
University of Michigan, Winter 2019

Mentor of:
- Wiser – (Women In SEcurity Research) at University of Michigan (2018-2020)
- First Generation Engineering Program at University of Michigan (2018-2020)
- Society of Women Engineers Summer Camp mentor at University of Michigan (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, ROS, MPLAB, MikroC for PIC and ARM
Languages	Italian	Native speaker
	English	Fluent
	Spanish	Fluent