

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 the Internet of Things.

Education **University of Pavia** Pavia, Italy
PhD in Electronics, Computer Science and Electrical Engineering, 2014.
Thesis: Embedded system for Lab-On-Chip biosensors
Advisor: Giovanni Danese

University of Pavia Pavia, Italy
MEng in Computer Science Engineering, 2010.
Thesis: Design and implementation of a portable device for multi-parameter analysis based on Surface Plasmon Resonance
Advisor: Francesco Leporati

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

Academic positions **Electrical Engineering & Computer Science, Univ. Michigan** Ann Arbor, MI
Research Investigator, Feb 2018 - present

Electrical Engineering & Computer Science, Univ. Michigan Ann Arbor, MI
Computer Science Research Affiliate, Aug 2017 – Jan 2018

Computer Science Engineering, Univ. Pavia Pavia, Italy
Postdoc fellow, 2014

Research experience **Applied Microelectronic, Univ. de Las Palmas de Gran Canaria** Las Palmas de Gran Canaria, Spain
Visiting researcher, Integrated System Design Division, Spring 2014. Researcher on Support Vector Machine (SVM) for Hyperspectral Images classification.

Teaching experience **C coding**
Instructor of record. Department of Mathematics, University of Pavia, 2013 - 2014
Topic: Ansi C Program language syntax and static and runtime semantics.

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

Topic: introduction to web programming, HTML, CSS, JAVASCRIPT language syntax and examples of application.

Introduction to Computer Systems

Teaching Assistant. Computer Science Engineering,
University of Pavia, 2007-2010

Topic: Ansi C Program language syntax and semantics.

Industrial experience

Azcom Technology

Assago, Italy

Firmware developer for LTE embedded system, 2016-2017

Client: **Blue Danube Inc.**

Project: Firmware and software developer for smart antenna based wireless network.

Alten Italia

Milano, Italy

Software engineer consultant, 2015-2016

Client: **Leonardo S.p.A.**

Project: Embedded software developer for the spacecraft EUCLID Command and Data Handling (C&DH) system and orbit control.

Client: **Magneti Marelli (Fiat Chrysler Automobiles Group)**

Project: Model-based design engineer for HMI (Human-Machine Interface) in automotive cluster area.

Refereed conference publications

C Bolton, **S Rampazzi**, C Li, A Kwong, W Xu, K 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.

S Rampazzi, F Loporati, G Danese, N Nazzicari, L Fornasari, F Marabelli, A. 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)*, Kraków, 8-11 Sept. 2013, pp. 619-626.

S Rampazzi, G Danese, L Fornasari, F Loporati, F Marabelli, N Nazzicari, A. 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

S Marini, F Vitali, **S Rampazzi**, A Demartini, T Akutsu, "Protease target prediction via matrix factorization". In *Bioinformatics*, 29 Aug. 2018, bty746.

S Rampazzi, G Danese, F Loporati, F 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.

Unrefereed publications	S Marini, F Vitali, S Rampazzi , A Demartini, T Akutsu, "Protease target prediction via matrix factorization", bioRxiv, 2018/1/1
Posters	C Bolton, S Rampazzi , C Li, A Kwong, W Xu, K 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 Security and Privacy, May 2018.
Patents issued	Rampazzi Sara , Danese Giovanni, Fornasari Lucia, Leporati Francesco, Marabelli Franco, Nazzicari Nelson, Valsesia Andrea "Detection device of molecular compounds based on Surface Plasmon Resonance". European patent #IT2013MI01345 20130806. Priority 2013. Issued 2015.
Invited speaker	<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> <p>"A Novel Portable Surface Plasmon Resonance Based Imaging Instrument for On-Site Multi-Analyte Detection". Conference presentation in the 6th International Symposium on Multimedia Applications and Processing, collocated event of FedCSIS 2013, Kraków, 9/10/2013.</p> <p>"Future sensors: design and applications", seminar in IEEE Student Branch DOC Afternoons, University of Pavia, 31/01/2013</p>
Invited talks	"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
Service to profession	<p>Peer Reviewer Science Magazine (ISSN 0036-8075), Impact Factor: 37.205; 2018 - <i>present</i> Sensors (ISSN 1424-8220), Impact Factor: 2.475; 2016 - <i>present</i></p> <p>NSF SaTC grant proposal review panelist Panelist reviewer for small (500K) grant proposals on the Secure and Trustworthy Cyberspace (SaTC) program of the National Science Foundation; 2018 - <i>present</i></p> <p>Consultant for Archimedes, Center of Medical Device Security University of Michigan, 2018-<i>present</i> Archimedes is an independent, pioneering center created to help manufacturers, industry experts and physicians to navigate the operational hazards of cybersecurity implementation in healthcare.</p>

Senior personnel on THAW

University of Michigan, 2018-present

The Trustworthy Health and Wellness (THAW) is an NSF-funded project that tackles many of the fundamental research challenges necessary to provide trustworthy information systems for health and wellness, as sensitive information and health-related tasks are increasingly pushed into mobile devices and cloud-based services.

Society of Women Engineers Summer Camp mentor

University of Michigan, Summer 2018

Summer Engineering Exploration (SEE) Camp mentor for high school students interested in learning more about engineering and security in Cyberspace.

IEEE Student Branch Computer Science Area Advisor

IEEE Pavia Student Branch, Region 8, Italian section,
University of Pavia, 2011-2014.

Introducing computer science engineering undergraduate students to research and encouraging them to meet and share their ideas in their areas of interest and future profession.

Organization committee member

Euromicro SEAA 2014/ DSD 2014 Conference, Verona (Italy), 2014

Technical Skills

Programming languages: Matlab, C, Perl, Java

Design/Modelling/
Simulation tools: Matlab-Simulink, COMSOL Multiphysics, StateFlow,
IBM Rational Rhapsody.

Programming/
Validation/Testing tools: IBM Rational Logiscope, QA System Cantata++,
dSpace Target Link, MPLAB, MikroC for PIC and ARM

Languages

Italian	Native speaker
English	Fluent
Spanish	Fluent