



WORK EXPERIENCE

01/11/2018 – 31/01/2022 – Bologna, Italy

**PHD STUDENT IN ELECTRONIC ENGINEERING AND VISITING RESEARCHER AT UNIVERSITY OF GLASGOW – DEI
UNIVERSITY OF BOLOGNA -- UNIVERSITY OF GLASGOW**

- 1/11/2021- 31/01/2022 **Visiting Researcher at University of Glasgow** within the project on the design and experimental validation of tissue-independent wearable antennas for wireless power transfer applications
- **Doctoral research Project titled:** “*RF energy harvesting systems for electromagnetic harsh environments: from industrial plants to wearable/implantable devices*”. The research activity is carried out within the PRIN Project WPT4WID and it is focused on the design and experimental validations of wireless power transfer systems operating at millimeter-waves for wearable applications.
- The research has also involved the design and experimental validations of a 2.45 GHz antennas for wireless power transfer operating in electromagnetically hostile environments, for industrial applications.
- Additional research activities involve the design and realization of energy-autonomous microfluidic sensors for fluid detection and the use of the RFID technology to implement systems for Item level tagging.
- Enrolled as a teaching assistant for the A.Y. 2019/2020 and A.Y. 2020/2021 within the Master degree in Telecommunications Engineering at the University of Bologna.

01/07/2018 – 31/10/2018 – Bologna, Italy

RESEARCH FELLOW – DEI- GUGLIELMO MARCONI- UNIVERSITY OF BOLOGNA

Research activity within the project “*Analysis of RFID tags for Item Level Tagging applications*”, aimed to realized a system able to localized item on smart shelf exploiting the RFID technology, together with the development of a custom software for the data processing.

01/11/2017 – 30/06/2018 – Bologna, Italy

RESEARCH FELLOW – CIRI-ICT - UNIVERSITY OF BOLOGNA

Research Activity within the POR FESR Project HABITAT aimed to design a 2.45 GHz wearable antenna incorporated into a radio system for indoor localization in a home living environment.

<https://www.unibo.it/it/ricerca/progetti-e-iniziativa/progetti-unibo-por-fesr-2014-2020-1/habitat>

EDUCATION AND TRAINING

01/01/2015 – 05/10/2017

MASTER DEGREE IN BIOMEDICAL ENGINEERING – University of Bologna

The thesis has been focused on the study, design and implementation of a small system performing wireless power transfer from an external device to a small capsule with omni-directional receiving capabilities. The project has been the main topic of a conference article and presented at the International Microwave Symposium on June 14th 2018 in Philadelphia, USA.

Field(s) of study

- Biomedical Engineering

Thesis: Project of a 6.78 MHz wireless power transfer link for implantable applications

107/110

01/09/2011 – 11/12/2014 – Italy

BACHELOR DEGREE IN BIOMEDICAL ENGINEERING – University of Bologna

The thesis has required a 3-month internship at the Electrophysiology ward of the Infermi Hospital in Rimini. The thesis topic concerns the role of a biomedical engineer within an hospital scenario, with focus on the remote monitoring of the cardiac devices implanted on patients, as CRT-D, pacemakers and loop recorder.

Field(s) of study

- Biomedical Engineering

Thesis: Remote monitoring of implantable cardiac devices: the role of biomedical engineers in Cardiology

104/110

01/08/2009 – 01/07/2010 – Sauquoit, United States

CERTIFIED YEAR OF STUDY ABROAD – Sauquoit Valley High School

Participation as an exchange student to the Long-term Rotary Youth Exchange Program in Saquoit, NY, USA where I attended the senior year of the Sauquoit Valley High School.

Field(s) of study

- Rotary Exchange Program

● **ACADEMIC ACTIVITIES**

01/02/2021 – 30/09/2021

Teaching Tutor

Teaching tutor within the following Master Degree Course:

- "Technology and Applications for Wireless Power Transfer"- Master Degree in Electronic and Telecommunications Engineering- University of Bologna

01/02/2020 – 30/09/2020

Teaching Tutor

Teaching tutor within the following Master Degree Course:

- "Technology and Applications for Wireless Power Transfer"- Master Degree in Electronic and Telecommunications Engineering- University of Bologna

Master Thesis co-supervisor

- Di Florio Di Renzo Alessandra (2019) "Electromagnetic characterization of coplanar ground planes effects on microstrip circuits." Bachelor Degree in Electronic and Telecommunications Engineering, University of Bologna.
- Saiz Laura (2019) "Design of omni-directional circularly polarized antenna." Bachelor Degree in Electronic and Telecommunications Engineering, University of Bologna.
- Zincarelli Nicola (2019) "Design and realization of a wireless passive wearable sensor for biological fluids identification". Master Degree in Biomedical Engineering, University of Bologna.

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C1
FRENCH	B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

CERTIFICATIONS

Engineering National Professional Certificate

Received the qualification to exercise the Profession of Biomedical Engineer, belonging to the branch of Information Technologies Engineering, on July 2020.

Foreign Languages Certifications

Cambridge IELTS C1 (Overall score 7.5)

DIGITAL SKILLS

Adobe Photoshop | Written and Verbal skills | Good listener and communicator | Organizational and planning skills | Team-work oriented | Presenting | Microsoft Office

JOB-RELATED SKILLS

Expertises

- Teaching
- Design and realization of patch antennas for indoor localization and project of radio frequency front end.
- Design and realization of patch antennas for wireless power transfer at 2.45 GHz.
- Design and realization of a wearable radio-frequency sensor for fluid characterization.
- Experience in developing systems exploiting the RFID technology for Item Level Tagging purposes.

TECHNICAL SKILLS

Expertises

- Proficient knowledge of **CST microwave Studio, Advance Design Studio, AWR Design Environment** and **KiCad software** for antennae and circuit design.
- Good knowledge of programming languages as Java for Android App development and C# for RFID interfaces.
- Basic knowledge of Matlab and Python.
- Basic knowledge of **3D printing** software interfaces.

● HONOURS AND AWARDS

13/01/2021

Awardee of the MTT-S Graduate Fellowship Award – MTT-S

13/04/2021

Awardee of the EuMA Internship Abroad – EuMA- European Microwave Association

Awardee of a EuMA scholarship for an Internship at the University of Glasgow during the PhD programme.

● PUBLICATIONS

Efficient Simulation Method for Wireless Power Transfer

<https://ieeexplore.ieee.org/document/8892029> – 2019

Engineered and miniaturized 13.56 MHz omni-directional WPT system for medical applications

<https://ieeexplore.ieee.org/document/8892169> – 2019

A wearable passive microwave fluid sensor wirelessly activated

<https://ieeexplore.ieee.org/document/9055618> – 2019

Design of a RF-to-dc Link for inbody IR-WPT with a Capsule-shaped Rotation-insensitive Receiver

<https://ieeexplore.ieee.org/document/8439499> – 2018

Design of a Miniaturized Omni-Directional RF-to-dc IR-WPT

<https://ieeexplore.ieee.org/document/8639104> – 2018

HABITAT: An IoT Solution for Independent Elderly"

<https://www.mdpi.com/1424-8220/19/5/1258> – 2019

Circuit and system design of moving WPT

2018

Wearable Tag at 2.45 GHz for Continuous Tracking of Patients Activities in Indoor Environments

<https://ieeexplore.ieee.org/document/8526003> – 2018

RF energy on-demand for automotive applications

<https://ieeexplore.ieee.org/document/9224078> – 2020

Wireless detector for ethanol solutions

<http://www.ursi.org/proceedings/procGA20/papers/PID6349165.pdf> – 2020

RF-Powered Low-Energy Sensor Nodes for Predictive Maintenance in Electromagnetically Harsh Industrial Environments

<https://www.mdpi.com/1424-8220/21/2/386> – 2020

A Wearable Flexible Energy-Autonomous Filtenna for Ethanol Detection at 2.45 GHz

IEEE Transactions on Microwave Theory and Techniques (Early Access)
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9422922> – 2021

Wireless Power Transfer in the Radiative Near-field Through Resonant Bessel-Beam Launchers at Millimeter Waves

<https://ieeexplore.ieee.org/document/9458226> – 2021

Wireless Power Transfer for Wearable and Implantable Devices: a Review Focusing on the WPT4WID Research Project of National Relevance

<https://ieeexplore.ieee.org/document/9560425> – 2021

Recent Developments of RFID and WPT Technologies for Biomedical and Industrial Applications at the University of Bologna

<https://ieeexplore.ieee.org/abstract/document/9617275> – 2021

Wearable, Energy-Autonomous RF Microwave Systems

2021

● CONFERENCES AND SEMINARS

27/04/2021 – 30/04/2021 – on-line

ESoA Course: Leaky Waves and Periodic Structures for Antennas Applications (6th Edition)

Participation to the ESoA Course organized by "La Sapienza" University of Rome on Leaky Waves and Periodic Structures for Antennas Applications.

26/11/2020 – 27/11/2020 – Remote- Official Location: Rome

RiNEM 2020 - Riunione Nazionale di Elettromagnetismo

Participation to the RiNEM 2020 and presentation of the research work titled: " 2.45 GHz Energy-autonomous wearable sensor for Ethanol detection ".

22/07/2020 – 22/07/2020 – Remote

Wireless power transfer: technologies and applications

Co-Relator within the PhD School titled "Wireless power transfer: technologies and applications" organized by the University of Pisa.

Topic of the presentation: design rules to implement an energy harvesting system, both on the theoretical side and with a practical case involving the software CST Microwave Studio and AWR Microwave Office.

02/12/2019 – 05/12/2019 – Rome

5G PhD School and 5G Italy Conference

25/09/2019 – 27/09/2019 – Pisa

IEEE RFID-TA

Participation to the 2019 IEEE RFID-TA Conference and presentation of the research papers titled "Efficient Simulation Method for Wireless Power Transfer" and "Engineered and miniaturized 13.56 MHz omnidirectional WPT system for medical applications".

17/06/2019 – 21/06/2019 – London-UK

WPTC 2019

Participation to the Wireless Power Transfer (WPTC) and presentation of the research paper titled "A wearable passive microwave fluid sensor wirelessly activated".

16/05/2019 – 16/05/2019 – Bologna- Master Degree in Telecommunications Engineering

UHF RFID Technologies: Principles and Applications

Relator of the course titled "UHF RFID Technologies: Principles and Applications" within the Master Degree In Telecommunications Engineering at the University of Bologna.

The topic involved the definition of the RFID technology, together with the basis principles and applications examples.

10/04/2019 – 12/04/2019 – Pisa

An overview of UHF RFID Technology: Past, Present and Future

Participation to the doctoral course titled "An overview of UHF RFID Technology: Past, Present and Future", University of Pisa.

03/12/2018 – 07/12/2018 – Bologna

PhD Creativity and Entrepreneurship

Participation to the Winter School titled "PhD Creativity and Entrepreneurship

03/09/2018 – 06/09/2018 – Cagliari

XXII Riunione Nazionale di Elettromagnetismo,

Participation to the XXII Riunione Nazionale di Elettromagnetismo, Cagliari, 3rd-6th of September 2018 and presentation of the research paper titled: "Rotation-Insensitive RF-To-DC Link for IPT Implants".

10/06/2018 – 15/06/2018 – Philadelphia- USA

International Microwave Symposium

Participation to the International Microwave Symposium (IMS), Philadelphia, PA, USA, June 10th-15th 2018 and presentation of the research paper titled "Design of a RF-to-dc Link for in-body IR-WPT with a Capsule-shaped Rotation-insensitive Receiver".

29/08/2017 – 01/09/2017 – Cambridge-UK

Summer School on Cyber-Physical Systems

Participation to the Summer School on Cyber-Physical Systems.

VOLUNTEERING

27/08/2021 – 04/09/2021

Student Volunteer at URSI GASS 2021

Rome

Enrolled as student volunteer in the organizing staff within the Conference URSI GASS 2021 held in Rome.

10/06/2018 – 15/06/2018

Student Volunteer at IMS 2018

Philadelphia

Enrolled as student volunteer within the Conference IMS 2018 in Philadelphia

<https://2018.ims-ieee.org/>