CHRISTIAN FARINA

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BIO

Presently, I am a PhD student at the University of Verona, Italy and I am currently member of IoT4Care research group founded by Prof. Graziano Pravadelli in 2021. The focus of this research group is to design and validate systems which aim to enhance the quality of life for people with special needs through IoT technologies (e.g. sensors, wearable devices, smart objects, etc.). I started my academic career at the University of Verona back in 2020, where I gained a Bachelor's degree in Computer Science after three years in July 2023. In the same year I started a Master's degree in Computer Science and Engineering at University of Verona which I finished in July 2025 obtaining the qualification by presenting the master's thesis titled *"Toward Multi-Person Breath Rate Estimation via mmWave Radar"* supervised by Prof. Graziano Pravadelli. My current work focuses on the development of an algorithm to detect the vital signs of multiple people in a cluttered environment using millimeter waves.

RESEARCH INTEREST

My research topics involve **wireless sensing**, **vital sign monitoring**, and **bluetooth sensors**. In detail, my primary research focus is on developing systems that collect data from the environment using sensors or other technologies. Notably, I developed an algorithm for detecting the vital signs of multiple individuals in an environment using millimeter-wave technology, which led to the publication of an article titled *"Toward Multi-Person Breath Rate Estimation via mmWave Radar"*. I have also worked extensively with BLE beacon sensors for data collection via Android devices, with the aim of performing environmental monitoring. My research contribution consists of a healthcare innovation that enables the detection of respiratory issues and monitoring of breathing rates without touching the patients.

EDUCATION

University of Verona, Verona, Italy

M.S. in Computer Science and Engineering   *Oct 2023 - Jul 2025*
Degree: LM-32 – Master Degree in Computer Science and Engineering
Thesis title: Toward Multi-Person Breath Rate Estimation via mmWave Radar
Supervisor: Prof. Graziano Pravadelli
Graduation date: 2025/07/17
Grade: 107/110

B.S. in Computer Science   *Oct 2020 - Jul 2023*
Degree: L-31 – Bachelor Degree in Computer Science
Thesis title: SHPIA: a low-cost multi-purpose Smart Home Platform for Intelligent Applications
Supervisor: Prof. Graziano Pravadelli
Graduation date: 2023/07/11
Grade: 105/110

RESEARCH EXPERIENCES

University of Verona, Verona, Italy

Research project at the University of Verona with the IoT4Care research group   *Sep 2024 – Present*
The aim of this project is to develop an algorithm to detect the respiratory rate of multiple people in an environment using the Texas Instruments (TI) AWR1243BOOST mmWave board to capture radar signals. The extraction of the subjects' vital signs can be done either by processing the data collected from the board at a later time or in real time. Currently, it is possible to detect data from up to four people sitting in front of the board, the future goal will be to increase the number of people involved and to improve the algorithm so that it can extract the respiratory rate and heart rate of moving subjects. An article related to this project titled *"Toward Multi-Person Breath Rate Estimation via mmWave Radar"* is under review.

- Study of Python language to interface with (TI) AWR1243BOOST mmWave board
- Study of the fundamentals of millimeter wave radar sensors
- Definition of a methodology to detect the vital signs of multiple people in an environment
- Set up of the experimental validation and analysis of the results

- Writing of a scientific paper

Internship at the University of Verona with the IoT4Care research group *Sep 2022 – Jun 2023*
The aim of the Bachelor's degree internship is to acquire skills in research and study material collection, combined with the ability to understand and critically analyze such material, in order to develop Android applications that interface with BLE beacon sensors. My task was to extend an Android application that collected data from Nordic BLE sensors to also support Global Tag beacon sensors and save the recorded data in a non-relational database. The article about this project is titled *"SHPIA 2.0: An Easily Scalable, Low-Cost, Multi-purpose Smart Home Platform for Intelligent Applications"* and was published in 2023.

- Study of Java language for android application programming
- Study of BLE Bluetooth protocols for beacons (Eddystone, IBeacon and AltBeacon)
- Study of the technology used by Global Tag sensors
- Study of NoSQL document database MongoDB
- Definition of a methodology to monitor environments using beacon sensors
- Set up of the experimental validation and analysis of the results

EXTRA ACTIVITIES

Work experience as a programmer MyMB - My Mobile Business May 2019 - Jun 2019

PUBLICATIONS

Conference Articles

[C1] Cristian Turetta, **Christian Farina**, Chiara Bozzini, Morteza Varasteh, and Graziano Pravadelli. "Toward Multi-Person Breath Rate Estimation via mmWave Radar". In: *VLSI-SoC*. 2025.

REFEREES

Graziano Pravedelli Full Professor, Department of Computer Science at University of Verona, Verona, Italy.
graziano.pravadelli@univr.it

Florenc Demrozi Associate Professor, Department of Electrical Engineering and Computer Science, University of Stavanger, Norway.
florenc.demrozi@uis.no

SKILLS

Programming

- Java
- Python
- SQL
- C
- HTML
- CSS
- Assembly
- XML

Languages

	Understanding		Speaking		Writing
	Listening	Reading	Interaction	Production	
Italian	native	native	native	native	native
English	advanced	advanced	advanced	advanced	advanced

Signature

October 2025