

# Gianni Tumedei

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- 📍 Cesena FC, Italy
- 👤 Birth date: 25/02/1996  
Citizenship: Italian



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## CURRENT OCCUPATION

**PhD student** at the University of Bologna, Department of Computer Science and Engineering.  
**Research topic:** Digital Twin and HCI to Augment Smart Environment

**Teaching tutor** at the University of Bologna, campus of Cesena, for the course of Mobile Systems Programming (Programmazione di Sistemi Mobile) of the first cycle degree in Computer Science and Engineering (Ingegneria e Scienze Informatiche).

## WORK EXPERIENCE

November 2023 - Today

### University of Bologna

*PhD Student*

**Research topic:** Digital Twin and HCI to Augment Smart Environment

**Description:** This PhD project's goal is to apply HCI techniques to visualize and manipulate data within Digital Twins (DTs), investigating on the effectiveness of classic user interfaces, eXtended Reality (XR), voice commands and more. By focusing on some case studies, mainly about smart environment digital twins, the idea is to find out how the human-DT interface can be designed to positively impact aspects like infrastructure management, awareness and decision-making processes. The end results are going to be generalized into a set of universal guidelines on how to communicate and manipulate DT data across diverse fields.

November - December 2023

### Radio Centrale

*Web developer*

**Description:** creation of the new Radio Centrale website.

**Website:** <https://radiocentraleweb.it>

**Technologies:** Node.js, TypeScript, Astro, Solid.js, Payload CMS, MongoDB.

a.y. 2023/2024

### University of Bologna

*Teaching Tutor*

**Subject:** Mobile Systems Programming (Programmazione di Sistemi Mobile)

**Course:** first cycle degree in Computer Science and Engineering (Ingegneria e Scienze Informatiche)

**Tasks:**

- Hold lectures and laboratory exercises

February - October 2023

**University of Bologna**

*Research Fellow*

**Project:** H2020\_SMARTLAGOON

**Subject:** Designing Digital Twin interfaces and Data Visualization for increasing the stakeholders' awareness in the SMARTLAGOON context

a.y. 2022/2023

**University of Bologna**

*Teaching Tutor*

**Subject:** Web Services and Applications (Applicazioni e Servizi Web)

**Course:** second cycle degree in Computer Science and Engineering (Ingegneria e Scienze Informatiche)

**Tasks:**

- Hold lectures
- Support in-laboratory lectures

a.y. 2022/2023

**University of Bologna**

*Teaching Tutor*

**Subject:** Web Systems Engineering (Ingegneria dei Sistemi Web)

**Course:** first cycle degree in Computer Systems Technologies (Tecnologie dei Sistemi Informatici)

**Tasks:**

- Hold lectures
- Support in-laboratory lectures
- Correction of exam projects

a.y. 2021/2022

## University of Bologna

*Teaching Tutor*

**Subject:** Foundations of Web Systems (Fondamenti di Sistemi Web)

**Course:** first cycle degree in Computer Systems Technologies (Tecnologie dei Sistemi Informatici)

**Tasks:**

- Support in-laboratory lectures
- Correction of exam projects

October - December 2021

## Scientific High School "Augusto Righi", Cesena (FC)

*Computer Science and Technology Teacher*

**Tasks:**

- Substitute teacher in the subject of Computer Science
- Support for foreign students in learning the italian language and studying Computer Science

May - September 2021

## University of Bologna - Navile Project

*Contract for research activity*

Development, for the new Navile building complex of the University of Bologna, of an intuitive and usable wayfinding platform that provides public kiosk displays with a responsive UI, SVG maps and indications on how to reach campus spaces.

**Supervisor:** Prof. Catia Prandi

**Research team:** two researchers of the Computer Science and Engineering department, two research students

**Technologies:** Node.js, TypeScript, Vue.js, Express, MySQL

2021

## Morethantech

*Web developer*

Creation and maintenance of the Morethantech website.

**Website:** <https://morethantech.it>

**Technologies:** Node.js, TypeScript, Vue.js, tRPC, MySQL, Docker.

December 2020 - February  
2021

## **University of Lisbon - Maré Project**

*Scholarship for research activities*

Development of a platform to help students return to normal after Covid-19, by offering a ML predicted value of the number of people inside campus spaces, a feedback system to improve estimates, and an unenforced booking system, all accessible via a mobile application.

**Supervisors:** Prof. Catia Prandi, Prof. Augusto Esteves

**Research team:** international team with members from the University of Bologna, University of Minho, University of Porto, ITI / LARSyS, University of Lisbon

**Technologies:** Dart, Flutter, Google Maps SDK, Firebase

### **Related publications:**

- Ma, S., Nisi, V., Esteves, A., Prandi, C., Nicolau, H., **Tumedei, G.**, Nogueira, J., Boschi, F. and Nunes, N., 2022. Crowdsensing-enabled service design for floating students during the COVID-19 pandemic. In *Congress of the International Association of Societies of Design Research* (pp. 943-959). Springer, Singapore.
- **Tumedei, G.**, Boschi, F., Prandi, C., Gomes, L., Calheno, R., Abreu, R., Ma, S., Nisi, V., Nunes, N. and Esteves, A., 2021, September. Promoting a safe return to university campuses during the COVID-19 pandemic: Crowdsensing room occupancy. In *Proceedings of the Conference on Information Technology for Social Good* (pp. 145-150).

October - November 2019

## **Tajana, Barlocco, Galluccio & Partners**

*Web developer*

Creation of a new website for the company.

**Website:** <https://tbgstudio.it>

**Technologies:** HTML, CSS, JavaScript, Bootstrap, PHP.

April 2018

## **Infia S.r.l.**

*Occasional performance*

VBA macro programming in Microsoft Excel.

October 2016 - July 2017

**Infia S.r.l.**

*Employment - IT support*

**Activities and responsibilities:**

- Supporting the IT manager
- Troubleshooting, maintenance and system integration and configuration tasks
- Collaboration in the migration project towards ERP and MES systems, with particular regard to data migration
- Collaboration in the project for the installation of an automatic palletizer in one of the company's production departments
- IT assistance to employees
- Employees workstation setup
- VBA macro programming in Microsoft Excel
- Queries on SQL Server Management Studio
- Product label design using ZPL language

February - July 2016

**Infia S.r.l.**

*Internship - IT support*

**Activities and responsibilities:**

- Supporting the IT manager in various troubleshooting, maintenance and system integration and configuration tasks
- IT assistance to employees
- Employees workstation setup
- VBA macro programming in Microsoft Excel
- Queries on SQL Server Management Studio

June - July 2014

**Infia S.r.l.**

*Internship in collaboration with ITT B. Pascal*

**Activities and responsibilities:**

- Supporting the IT manager
- IT assistance to employees
- VBA macro programming in Microsoft Excel
- Queries on SQL Server Management Studio

July 2013, July - August 2012

**eSTATE ATTIVI project - ITAS G. Garibaldi Cesena**

*Volunteering in collaboration with the Municipality of Cesena*

Sale of the company's fruit products.

## EDUCATION AND QUALIFICATIONS

November 2023 - Today

### University of Bologna

*PhD Student*

**Research topic:** Digital Twin and HCI to Augment Smart Environment

**Description:** This PhD project's goal is to apply HCI techniques to visualize and manipulate data within Digital Twins (DTs), investigating on the effectiveness of classic user interfaces, eXtended Reality (XR), voice commands and more. By focusing on some case studies, mainly about smart environment digital twins, the idea is to find out how the human-DT interface can be designed to positively impact aspects like infrastructure management, awareness and decision-making processes. The end results are going to be generalized into a set of universal guidelines on how to communicate and manipulate DT data across diverse fields.

2019 - 2022

### Second cycle degree in Computer Science and Engineering

*University of Bologna, Campus of Cesena*

**Grade:** 110/110 and honors

**Class n.:** LM-32 Computer systems engineering

**Elaborate details:**

**Title:** Towards a Smart Campus Digital Twin: Promoting Awareness and Sustainability Through Wayfinding and Real-Time Environmental Data

**Subjects:** Web Services and Applications

**Supervisor:** Prof. Catia Prandi

**Description:** Documentation of the AlmaMap Navile project, a system that powers public touch kiosks across the Navile district of the University of Bologna, offering two main features: i) maps and wayfinding to help people in orienting themselves; and ii) real-time environmental data and comfort level about campus spaces, obtained by interfacing with the BIM system installed at the complex. The end result is a first step towards building a smart campus Digital Twin, that can support all the people who are part of the campus life in their daily activities, improving their experience, giving them the ability to make informed decisions, and promoting awareness and sustainability.

**URL:** <https://amslaurea.unibo.it/27643>

2015 - 2019

## **First cycle degree in Computer Science and Engineering**

*University of Bologna, Campus of Cesena*

**Grade:** 100/110

**Class n.:** L-8 Information technology engineering

**Elaborate details:**

**Title:** Il protocollo OPC UA

**Supervisor:** Prof. Franco Callegati

**Subject:** Telecommunication Networks

**Description:** Detailed analysis of the OPC Unified Architecture protocol, an open source and cross platform solution for data exchange in the industrial and IoT fields.

**URL:** <https://amslaurea.unibo.it/19780>

2010 - 2015

## **High school graduation in Computer Science and Telecommunications**

*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*

**Grade:** 100/100

**Address subjects:**

- Computer technology
- Systems and Networks
- Project Management and Business Organization
- Electronics and Telecommunications
- Systems Technology & Design

2015

## **First Certificate in English (FCE)**

*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*

**Grade:** A

**Level:** C1

**Certification body:** Cambridge English Language Assessment

- 2015 **Garden in-depth and excellence course**  
*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*  
Creation of a greenhouse equipped with an online data acquisition and consultation system.
- 2014 **Basic training course for workers**  
*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*  
Training on:  
  - Concepts of risk, damage, prevention, protection
  - Rights and duties of the various company subjects
  - Mechanical, electrical, chemical, carcinogenic, biological risks
  - Workplaces, VDTs, work stress
  - Signs, emergencies
  - Safety and first aid procedures
  - Accidents and injuries
- 2013 **Preliminary English Test (PET)**  
*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*  
**Level:** B2  
**Certification body:** Cambridge English Language Assessment
- 2010 **Key English Test (KET)**  
*University of Bologna, Campus of Cesena*  
**Level:** A2  
**Certification body:** Cambridge English Language Assessment

## PUBLICATIONS

2024

### **Transforming Smart Campuses into User-Centric Environments by integrating BIM and Environmental Data**

*Gianni Tumedei, Chiara Ceccarini, Catia Prandi*

In proceedings of TrustSense 2024: 1st International Workshop on Pervasive Computing Challenges in Trustable Crowdsensing Systems - 2024 IEEE International Conference on Pervasive Computing and Communications (PERCOM 2024).

Workshops and Affiliated Events

2024

### **Toward a Digital Twin: combining sensing, machine learning, and data visualization for the effective management of a coastal lagoon environment**

*Giovanni Delnevo, Gianni Tumedei, Vittorio Ghini, Catia Prandi*

In proceedings of CCNC 2024: 3rd International workshop on IoT interoperability and the web of things (IIWOT'24).

Track 2 - Networking Solutions for Social Applications, Multimedia, and Games

2024

### **On developing a procedural level generator based on the Model Synthesis algorithm in the context of serious games**

*Davide Paolillo, Bryan Corradino, Gianni Tumedei, Mariagrazia Benassi, Catia Prandi*

In proceedings of CCNC 2024: 3rd International workshop on IoT interoperability and the web of things (IIWOT'24).

Track 2 - Networking Solutions for Social Applications, Multimedia, and Games

2024

**Train your attention and executive functions with Eye-Riders! A videogame for improving cognitive abilities in neurodiverse children**

*Mariagrazia Benassi, Davide Paolillo, Matilde Spinoso, Sara Giovagnoli, Noemi Mazzoni, Luca Formica, Gianni Tumedei, Catia Prandi*

In proceedings of CCNC 2024: 3rd International workshop on IoT interoperability and the web of things (IIWOT'24).

Track 2 - Networking Solutions for Social Applications, Multimedia, and Games

6 October 2023

**Evaluating the use of machine learning algorithms in environmental sensing for energy saving**

*Giovanni Delnevo, Gianni Tumedei, Vittorio Ghini, Catia Prandi*

In Proceedings of NET4us '23 (The 2nd Workshop on Networked Sensing Systems for a Sustainable Society, pp 201-206).

<https://doi.org/10.1145/3615991.3616402>

6 September 2023

**What Does Air Quality Sound Like? On Exploring the impact of Data Sonification Versus Data Visualization**

*Chiara Ceccarini, Gianni Tumedei, Gianluca Migliarini, Catia Prandi*

In Proceedings of GoodIT'23 (ACM International Conference on Information Technology for Social Good, pp 510-516).

Track: GoodIT'23 - Work-in-Progress Track Papers

<https://doi.org/10.1145/3582515.3609575>

15 December 2022

**Towards a Smart Campus Digital Twin: Promoting Awareness and Sustainability Through Wayfinding and Real-Time Environmental Data**

*Gianni Tumedei, Catia Prandi (supervisor), Augusto Esteves (co-supervisor), Andrea Manzo (co-supervisor)*

<https://amslaurea.unibo.it/27643>

06 November 2022

### **Crowdsensing-enabled Service Design for Floating Students during the COVID-19 Pandemic**

*Shuhao Ma, Valentina Nisi, Augusto Esteves, Catia Prandi, Hugo Nicolau, Gianni Tumedei, João Nogueira, Francesco Boschi, and Nuno Jardim Nunes*

In Congress of the International Association of Societies of Design Research (IASDR 2021, pp 943-959). Springer, Singapore.

[https://doi.org/10.1007/978-981-19-4472-7\\_61](https://doi.org/10.1007/978-981-19-4472-7_61)

09 September 2021

### **Promoting a Safe Return to University Campuses during the COVID-19 Pandemic: Crowdsensing Room Occupancy**

*Gianni Tumedei, Francesco Boschi, Catia Prandi, Luìs Gomes, Rui Calheno, Rui Abreu, Shuhao Ma, Valentina Nisi, Nuno Nunes, Augusto Esteves*

In Proceedings of the Conference on Information Technology for Social Good (GoodIT 2021, pp 145-150).

<https://doi.org/10.1145/3462203.3475911>

12 December 2019

### **Il protocollo OPC UA**

*Gianni Tumedei, Franco Callegati (supervisor)*

<https://amslaurea.unibo.it/19780>

## **AWARDS AND ACKNOWLEDGEMENTS**

2021

### **OSM11 Hackfest - Winner**

*Team Asterisk Unibo: Onur Ozenir, Gianni Tumedei, Gyordan Caminatti, Luca Salvigni, Mattia Rossi*

Exploiting OpenStack, Juju Charms and Asterisk for the implementation and deployment of a Virtual Network Function for VoIP calls.

[https://osm.etsi.org/wikipub/index.php/OSM11\\_Hackfest](https://osm.etsi.org/wikipub/index.php/OSM11_Hackfest)

2014

### **IT Olympics - Territorial selection**

*Istituto Tecnico Tecnologico Statale Blaise Pascal - P.le Macrelli, 100 - 47521 Cesena (FC)*

Participation to the territorial selection of the Italian IT Olympics and the related training course.

## **SCIENTIFIC CONFERENCES**

17-21 July 2024

### **The 22nd European Conference on Computer-Supported Cooperative Work (ECSCW2024)**

*Web Chair*

10-13 July 2022

### **IEEE International Conference on Distributed Computing Systems (ICDCS 2022)**

*Volunteer*

09-11 September 2021

### **ACM International Conference on Information Technology for Social Good (GoodIT 2021)**

*Speaker*

**Track title:** Promoting a Safe Return to University Campuses during the COVID-19 Pandemic: Crowdsensing Room Occupancy

## **VOLUNTEERING**

2018 - Today

### **AVIS Cesena**

*Blood donor*

## **SKILLS**

Mother language

**Italian**

Other languages

## **English**

Level: C1

## **Spanish**

Level: A1

Programming skills

## **Programming languages**

- TypeScript
- JavaScript
- Python
- PHP
- Go
- Java
- Scala
- Kotlin
- Swift
- Visual Basic
- Dart
- C
- C++
- C#

## **Markup languages and other DSLs**

- HTML
- CSS
- SCSS
- SQL
- GraphQL
- Markdown
- LaTeX

## **Technologies and frameworks**

- Node.js
- Vue.js
- React
- SolidJS
- Svelte
- Electron
- Spring Boot
- Flutter
- Git
- Docker
- MongoDB

Driving licence

B

Other skills

Amateur football player