

## Curriculum Vitæ et Studiorum

# Paolo Casari

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## General information

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**Nationality:** Italian

**Current Position:** Associate Professor, University of Trento, Italy

## Biography

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I received the Laurea (B.E.) in Electronics and Telecommunications Engineering in 2002 and the Laurea Specialistica (M.E.) in Telecommunications Engineering in 2004, both *summa cum laude*, from the University of Ferrara, Italy. In 2005, I joined the School of Information Engineering at the University of Padova as a PhD student, and graduated in March 2008.

My research initially focused on cross-layer design for two very different kinds of wireless networks, namely MIMO ad hoc networks and wireless sensor networks. After the PhD, I joined the Department of Information Engineering of the University of Padova as a postdoctoral fellow, and collaborated several times with CFR, a research consortium located in Ferrara, Italy. I was Technical Manager for a large National Italian project on WIRELESS SENSOR networks for city-Wide Ambient Intelligence (WISE-WAI), running from 2008 to 2011. Among the achievements of the project, we demonstrated environmental monitoring and localization via a full-fledged protocol suite running over a network of around 350 embedded wireless sensors.

Starting in 2009, I progressively focused on underwater acoustic communications and networks. My interest in this area dates back to 2007, when I spent six months as a visiting student with Milica Stojanovic, at the Massachusetts Institute of Technology. Until today, I made several contributions in this field, centered on MAC and routing protocol design, on the analysis of fundamental tradeoffs between energy consumption, transmission range and bit rate, on the simulation of network protocols using realistic channel models, as well as on the synthesis of simplified channel models to be used as an approximation in network simulations.

I have been leading all activities related to underwater communications within the networking group at the University of Padova from 2009 until the end of 2014. More specifically, I have been engaged in two major EU-funded projects, namely CLAM (FP7), where I have been WP leader, and RACUN (EDA), where I am the reference point-of-contact of my technical unit; one major Italian project, namely NAUTILUS (IIT-SEED), for which I also was Technical Manager; several funded collaborations with JHUAPL, as well as the US NSF and ONR. These projects spanned several topics, from channel characterization to protocol design, from simulation to sea trials and real-life experiments. Among the major achievements of the group, in May 2012 we released DESERT Underwater, a suite of software libraries that enables the simulation and easy experimentation of underwater networks, in a hardware-in-the-loop fashion. The software is now used by several educational and research institutions around the world.

In January 2015, I joined the IMDEA Networks Institute, Madrid, Spain, as a Research Assistant Professor, leading the Ubiquitous Wireless Networking group. In October 2019, I joined the Department of Information Engineering and Computer Science of the University of Trento, Italy, as an Assistant Professor, and as an Associate Professor since October 2022. Besides continuing my work on underwater communications and networks, I am now working also on millimeter-wave communications, where I am investigating localization techniques for context awareness and optimized network performance, as well as the application of machine learning to resource allocation problems. I have

been collaborating to several research projects including: NATO SPS ThreatDetect (on a hybrid moored/mobile platform for underwater intruder and mine detection – Principal Investigator); EU H2020 RECAP (on intelligent resource allocation and remediation in fog/edge/cloud environments – Scientific Manager); and EU H2020 SYMBIOSIS (Scientific Manager). I am currently involved in the EU H2020 Marie Skłodowska-Curie Action MINTS, and in the NATO SPS SAFE-UComm project (Principal Investigator).

I am active in the community as an organizing committee member or TPC member for several conferences. I have been recognized excellent reviewer by different journals several times. I have been guest editor of a special issue of the Hindawi Journal of Electrical and Computer Engineering on “Underwater Communications and Networking,” and I am currently guest editor of an IEEE Access special issue on the same topic, besides being Associate Editor for the IEEE Transactions on Mobile Computing and for the IEEE Transactions on Wireless Communications. I have served as a project proposal reviewer for EU COST actions, as well as for the Qatari, Israeli, Norwegian, Argentinian and Canadian research authorities. I participated to the definition of the NATO standard JANUS.

I co-authored about 150 papers appeared in international journals and conferences, with about 4800 citations and an h-index of 37 (source: Google Scholar, April 2023). I am a Senior Member of the IEEE and a member of the ACM.

## **Education**

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### ***PhD in Information Engineering***

Institution: University of Padova, Italy, *Doctoral School of Information Engineering*

Thesis: “MAC and Routing in Wireless Ad Hoc and Sensor Networks: a Cross-Layer Approach”

### ***Professional Engineering examination (2006)***

Passed on June 2006 at the University of Bologna, Italy.

### ***Laurea Specialistica (M.E.) in Telecommunications Eng. (2004)***

July 22<sup>nd</sup>, 2004, University of Ferrara, Italy

Final graduation mark: 110/110 *cum laude*

Thesis topic: Design and simulation of a geographic routing protocol for wireless sensor networks.

Other projects accomplished before the final dissertation: Analysis of numeric algorithms for computing emitted electric field and antenna currents; programming of a psychoacoustic-model-based audio compressor; programming of image watermarking algorithms; programming of a RSA cryptosystem; programming of main CPU functions on FPGA through VHDL.

### ***Laurea (B.E.) in Electronics and Telecommunications Eng. (2002)***

July 19<sup>th</sup>, 2002, University of Ferrara, Italy

Final graduation mark: 110/110 *cum laude*

Thesis topic: Simulation of a digital wireless communication system with multi-level quadrature digital modulation, carrier frequency and symbol timing recovery.

### ***Diploma di Maturità scientifica (high school education) (1999)***

July 18th, 1999, Liceo Scientifico “A. Roiti”, Ferrara, Italy,

Final mark: 100/100

## Distinctions

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- 2018: Italian Ministry of Education, Universities and Research **accreditation** for the role of Associate Professor, sector **09/F2 – Telecommunications**.
- 2018: Co-recipient of the **best paper award** at the IEEE WPNC 2017 conference.
- 2017 through 2019: three times recipient of the **honors** from the **University Carlos III of Madrid's Associate Dean for Quality**, for the excellent results after **teaching quality** assessments
- 2017: **Keynote speaker** at the 2nd “Global Conference on Wireless and Optical Communications” (GC-WOC'17), Malaga, Spain, Sep 2017.
- 2016: Co-recipient of the **award for the “Best student paper with experiments on underwater networks in memory of Giovanni Toso”** at the ACM WUWNet 2016 conference.
- 2004: **Letter of Encomium from the Laurea Specialistica evaluation commission** for “the outstanding examination marks, proven scientific skills and excellent achievements”
- 1999: **Ferrara Chamber of Commerce, Agriculture and Craftmanship “Francesco Viviani” Prize**

## Review service distinctions

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- Named **Distinguished TPC member** of IEEE INFOCOM (2022, 2020, 2018, 2016)
- Recognized for **excellence in review** by the EB of the IEEE Transactions on Wireless communications (2019)
- Recognized **Excellent Reviewer** for by the EB of the IEEE Journal of Oceanic Engineering (2017, 2016, 2015, 2013/14, 2012, 2011)
- Recognized **Outstanding Reviewer** by the EB of the Elsevier Ad Hoc Networks journal (2014)
- Recognized **Excellent Reviewer** by the EB of the IEEE Wireless Communications Letters (2013)

## Academic Experience

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### *Contracts and fellowships*

- October 2022 – today: **Associate Professor, University of Trento, Italy**
- October 2019 – October 2022: **Assistant Professor, University of Trento, Italy**
- January 2015 – October 2019: **Research Assistant Professor, IMDEA Networks, Madrid, Spain.**
- July 2013 – December 2014: **senior postdoctoral fellowship** at the **University of Padova, Italy.**
- December 2012 – June 2013: **postdoctoral fellowship** at the **University of Padova, Italy**
- February 2012 – November 2012: **postdoctoral fellowship** at the **University of Padova, Italy**
- February 2010 – January 2012: **postdoctoral fellowship** at the **University of Padova, Italy**
- June 2009 – September 2009: **research fellowship from the NATO Undersea Research Centre (NURC), La Spezia, Italy**
- January 2008 – December 2009: **postdoctoral fellowship** at the **University of Padova, Italy**
- February 2007 – July 2007: **visiting student fellowship** from the **Massachusetts Institute of Technology (MIT), Cambridge, MA**
- January 2005 – December 2007: **3-year fellowship** from the **Italian Ministry of University and Research (MIUR)** to cover the duration of the PhD course of studies

## ***Leadership roles in research projects***

- 01/03/2021 – 29/02/2024: **Principal Investigator**, *NATO SPS SAFE-UComm* project.
- 01/01/2021 – 31/12/2023: **Principal Investigator**, Univ. of Trento *COVID* project “*COVID-Cons*”.
- 01/11/2017 – 31/10/2020: **Scientific manager** and **co-PI**, *EU H2020 SYMBIOSIS* project.
- 15/05/2017 – 15/05/2020: **Principal Investigator**, *NATO SPS ThreatDetect* project.
- 01/01/2017 – 31/12/2019: **Scientific manager** and **co-PI**, *EU H2020 RECAP* project.
- 15/07/2010 – 15/10/2014: **Research unit reference person**, *RACUN* project.
- 01/06/2010 – 31/08/2013: **Research unit reference person**, *EU FP7 CLAM* project.
- 01/02/2010 – 31/10/2013: **Technical manager**, *NAUTILUS* project, funding: Italian Inst. of Technology.
- 01/07/2007 – 30/06/2011: **Technical manager**, *WISE-WAI* project, funding: CaRiPaRo foundation, IT.

## ***Funding***

- **Mar 2024 – Feb 2024**: *NATO SPS Safe-UComm* (**PROJECT PI**, ~340.000 Euro).
- **Mar 2021 – Feb 2024**: *NATO SPS Safe-UComm* (**PROJECT PI**, ~340.000 Euro).
- **Jan 2021 – Dec 2023**: *UniTN COVID* project *COVID-Cons* (**PROJECT PI**, ~33.000 Euro).
- **Apr 2020 – Oct 2023**: *EU H2020 MSCA ETN MINTS* (**Co-PI**, ~250.000 EUR)
- **Sep 2018 – Sep 2020**: *Spanish Ministry of Science DisCoEdge* (**Team member**, ~50.000 Euro).
- **Nov 2017 – Oct 2020**: *EU H2020 SYMBIOSIS* (**Scientific manager/IMDEA PI**, ~230.000 Euro).
- **May 2017 – May 2020**: *NATO SPS ThreatDetect* (**PROJECT PI**, ~340.000 Euro).
- **Jan 2017 – Dec 2019**: *EU H2020 RECAP* (**Scientific manager/IMDEA PI**, ~450.000 Euro).
- **Jan 2015 – Dec 2017**: *EU AMAROUT-II MSCA–PEOPLE-COFUND* Program (~81.000 Euro).
- **2013**: part of a team that secured a University of Padova **infrastructure fund** (~54.000 Euro).
- **2012**: **2-year Senior Postdoc Grant** from the University of Padova, Italy. (~42.500 Euro).
- **2008 to 2012**: **Postdoctoral fellowships** (~19.000 Euro per year).
- **2004**: **3-year PhD fellowship** from the Italian Ministry of Education, University and Research. Amount: ~32.000 Euro.

## ***Intellectual property***

1. A. Shastri, J. Pegoraro, M. Canil, P. Casari, M. Rossi, "Method for self-calibration of mmWave radar networks", **Italian patent pending**, deposit # 102022000005390
2. G. Bielsa, J. Palacios Beltran, P. Casari, J. Widmer, A. Loch Navarro, "Method for determining geometric information of devices in millimeter wave networks," **US Patent** 10,819,453, 2020
3. G. Bielsa, J. Palacios, A. Loch, P. Casari, J. Widmer, "Method for determining geometric information of devices in millimeter-wave networks": **US Patent** no. 10819453. **Spanish patent** no. 2.725.773, 2021.

## **Teaching**

- 2023:
  - ✓ “Simulation and performance evaluation,” University of Trento, Italy (Lecturer)
  - ✓ “Reti – Computer networks,” University of Trento, Italy (Lecturer)
  - ✓ “Networking I,” University of Trento, Italy (Lecturer)
- 2022:
  - ✓ “Simulation and performance evaluation,” University of Trento, Italy (Lecturer)
  - ✓ “Reti – Computer networks,” University of Trento, Italy (Lecturer)
- 2021:
  - ✓ “Simulation and performance evaluation,” University of Trento, Italy (Lecturer)
  - ✓ “Reti – Computer networks,” University of Trento, Italy (Lecturer)
- 2020:
  - ✓ “Reti avanzate e sicurezza,” University of Trento, Italy (Lecturer)
  - ✓ “Simulation and performance evaluation,” University of Trento, Italy (Lecturer)
- 2019:
  - ✓ “Simulation of Networks and Telematic Applications”, University Carlos III of Madrid, Spain (Lecturer – Formal acknowledgement from the Associate Dean for Quality for the excellent results after the course quality assessment)
- 2018:
  - ✓ “Simulation of Networks and Telematic Applications”, University Carlos III of Madrid, Spain (Lecturer – Formal acknowledgement from the Associate Dean for Quality for the excellent results after the course quality assessment)
- 2017:
  - ✓ “Simulation of Networks and Telematic Applications”, University Carlos III of Madrid, Spain (Lecturer – Formal acknowledgement from the Associate Dean for Quality for the excellent results after the course quality assessment)
- 2016:
  - ✓ “Simulation of Networks and Telematic Applications”, University Carlos III of Madrid, Spain (Lecturer)
- 2011:
  - ✓ “Modelli per le Reti” (Network Modeling), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2010:
  - ✓ “Modelli per le Reti” (Network Modeling), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2009:
  - ✓ “Modelli per le Reti” (Network Modeling), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2008:
  - ✓ “Modelli per le Reti” (Network Modeling), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2006:
  - ✓ “Matematica per l’Elaborazione dei Segnali” (Calculus for Signal Processing), University of Ferrara, Italy (Seminar classes, exercises, material review and preparation to the final exam)
  - ✓ “Modelli per l’Analisi delle Prestazioni nelle Reti” (Models for Network Performance Evaluation), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2005:

- ✓ “Elaborazione Numerica dei Segnali” (Digital Signal Processing), University of Ferrara, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- ✓ “Modelli per l’Analisi delle Prestazioni nelle Reti” (Models for Network Performance Evaluation), University of Padova, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- ✓ “Teoria dei Fenomeni Aleatori” (Stochastic Modeling), University of Ferrara, Italy (Seminar classes, exercises, material review and preparation to the final exam)
- 2004:
  - ✓ “Sistemi di Telecomunicazioni” (Telecommunication Systems), University of Ferrara, Italy, (Seminar classes, exercises, material review and preparation to the final exam)

## ***Supervised students and collaborators***

### **Supervised Postdocs**

- Klaudijo Klaser (micro-survey studies to investigate the evolution of agile work)

### **Supervised PhD Students**

- Anish Shastri (millimeter wave localization, expected graduation in May 2024)
- Constantine Ayimba (resource allocation in a fog/edge/cloud computing context, graduated May 2022)
  - ✓ Now postdoctoral fellow at University Carlos III of Madrid, Spain
- Elizaveta Dubrovinskaya (underwater localization and networking, graduated June 2021)
  - ✓ Now postdoctoral fellow at TalTech, Centre for Biorobotics, Tallinn, EE, and board member at TeleOne, Tallinn, EE

### **Supervised Master Students**

- Giacomo Castellan, ongoing (Biomimetic joint underwater communications and sensing)
- Davide Bergamasco, ongoing (Cell-free massive MIMO)
- Nicola Lombardi, ongoing (Physical layer privacy for underwater networks)
- Davide Eccher, ongoing (5G networking for model car control and platooning)
- Riccardo Scilla, Mar. 2022 (Low cost sensor calibration / EURAC)
- Andrea Matté, Mar. 2022 (Underwater link quality measurements)

### **Supervised Bachelor Students**

- Enrico Fornasa, ongoing (A distributed logging system for underwater experiments)
- Federico de Santi, ongoing (Multipath measurements in mmWave networks)
- Filippo Grilli, ongoing
- Andrea Ceron, ongoing (Remote control of a model car)
- Giacomo Casagrande, Mar. 2023 (Influence maximization over temporal networks)
- Guglielmo Zocca, Sept. 2022 (A distributed logging system for underwater experiments)
- Marco Bonora, Sept. 2022 (Dashboards to visualize student interactions with learning materials)
- Giovanni Antoniazzi, July 2022 (Implementation of a digital data hub)
- Francesco Vaccari, July 2022 (Fairness of TCP and BBR streams)
- Federico Giarré, July 2022 (Distributed SDNs using Zenoh)
- Alex Dal Ri, Mar. 2022 (Underwater fax/jammer)
- Gabriele Stulzer, Mar. 2022 (mmWave measurements with COTS hardware)
- Alessio Juan de Paoli, Sept. 2021 (V2I edge transitions)
- Tommaso Battistotti, March 2021 (Pub/Sub mechanisms)
- Jan Oradini, Mar 2021 (LoRa measurement with interference)
- Giovanni da Rold, Mar 2021 (privacy in mobile network trajectory data)
- Davide Eccher, Sep 2020 (underwater comms privacy)

## Co-supervised PhD Students

- Saiful Azad (underwater MAC and routing protocol design, University of Padova, Italy, 2010-2013)
- Waqas bin Abbas (Modeling and simulation of cross-layer policies for coded packet routing, University of Padova, Italy, 2014-2017)
- Giovanni Toso (Underwater routing protocol design and experimentation, University of Padova, Italy, 2013-2014)
- Beatrice Tomasi (Underwater MAC and ARQ protocol design and experimentation, University of Padova, Italy, 2008-2011)
- Davide Chiarotto (Performance evaluation of MIMO ad hoc networks, University of Padova, Italy, 2008-2011)

## Co-supervised Master and Bachelor Students

1. Ad Hoc Networks with MIMO Systems (2): Daniele Mazzi (2006), Marco Levorato (2005)
2. Wireless Sensor Networks (13): Matteo Salmistraro (2010), Renato Spiandorello (2010), Mattia Gheda (2010), Walter Berardi (2011), Leonardo Bazzaco (2010), Matteo Canale (2010), Nicola Bressan (2009), Davide Zennaro (2008), Federico Bertoldi (2006), Francesco Zorzi (2006), Dino Zuliani (2005), Matteo Cappellin (2005), Paola Violin (2005)
3. Underwater acoustic communications and networks: Maria Palmia (2014), Filippo Campagnaro (2014), Loris Brolo (2013), Marco Zanforlin (2012), Matteo Petrani (2012), Ivano Calabrese (2012), Matteo Lazzarin (2012), Federico Favaro (2011), Giovanni Toso (2011), Giuseppe Loccisano (2010), Nicola dalla Pozza (2009), Federico Guerra (2008), Beatrice Tomasi (2008), Paolo Casciaro (2008), Fabio Emilio Lapicciarella (2007), Stefano Marella (2006)
4. Millimeter-wave communications (1): Alain Olivier (2015)

## Internships and Exchange Programs

- **January-February 2022:** ERASMUS staff mobility for teaching, outgoing mobility towards the University of Haifa, Israel
- **April-October 2012:** Exchange researcher for Consorzio Ferrara Ricerche within the secondment program of the EU FP7 Marie-Curie action SWAP.
- **September 2010:** Research Assistant at the NATO Undersea Research Centre (NURC), La Spezia, Italy, during the ACommsNet 2010 sea trial campaign.
- **June-September 2009:** Visiting Research Consultant, NATO Undersea Research Centre (NURC), La Spezia, Italy
- **February-August 2007:** Visiting student, Massachusetts Institute of Technology, Cambridge, MA

## Invited talks

- **Invited talk** at the Summer School of Information Engineering (Brixen, Italy, 2022)
- **Invited talk** at the Summer school on non-terrestrial networks (Lac du Bourget, France, 2022)
- **Invited talk** at the NOSP+HAVLAB workshop, March 2019. Talk: “Friends or foes? How underwater acoustic channels can facilitate localization and authentication”
- **Keynote speaker** at the 2nd “Global Conference on Wireless and Optical Communications” (GC-WOC’17), Malaga, Spain, Sep 2017. Talk: “Underwater wireless communications and networks: evolution and recent results”
- **Invited talk** on “Underwater radiocommunications: an alternative to acoustics?” at the intermediate meeting of the “Underworld” project, PLOCAN, Gran Canaria, June 2015.
- **Centre de Telecomunicacions Tecnico de Catalunya (CTTC)**, Barcelona, Spain: **invited speaker** of a talk on “Recent results on underwater acoustic communications”.
- **Speaker** in a series of talks on the topic “Re-engineering Network Protocols to meet new challenges: the case of underwater communications”. The talk has been offered at major research groups

working in the field of underwater communications, including **UCLA** (Los Angeles, CA), **ASU** (Tempe, AZ), **Harvard University** (Cambridge, MA), **University of Florida** (Gainesville, FL), **VirginiaTech** (Blacksburg, VA), **University of Connecticut** (Storrs, CT), **University of Stuttgart** (Germany) and **TU Delft** (The Netherlands).

- **Centre de Telecomuncacions Tecnico de Catalunya (CTTC)**, Barcelona, Spain: **invited speaker** of a talk on Cross-layer design in MIMO ad hoc networks and Wireless Sensor Networks (2009).

# Publications

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## Journal Papers

- [P1] J. Palacios, P. Casari, J. Widmer, “Localization with machine learning for mmWave networks.” *IEEE Transactions Mobile Computing*, 2023. [In preparation.]
- [P2] A. Shastri, S. Blandino, C. Gentile, C. Lai, P. Casari, “Self-Supervised Millimeter Wave Indoor Localization using Tiny Neural Networks,” *IEEE Transactions on Wireless Communications*, 2023. [In preparation.]
- [S1] J. Pegoraro, M. Canil, A. Shastri, P. Casari, M. Rossi, “ORACLE: Occlusion-Resilient and Self-Calibrating mmWave Radar Network for People Tracking.” *IEEE Sensors Journal*, 2023. [Submitted.]
- [S2] L. Vignati, G. Nardini, M. Centenaro, S. Zambon, P. Casari, L. Turchet, “Is Music in the Air? Performance Evaluation of a 5G-Enabled Internet of Musical Things.” *ACM Transactions on the Internet of Things*, 2022. [Submitted.]
- [S3] P. Casari, L. Turchet, “Latency and Reliability Analysis of a 5G-Enabled Internet of Musical Things system.” *IEEE Internet of Things Journal*, 2023. [Submitted.]
- [S4] S. Tondini, R. Scilla, P. Casari, “Minimized training of machine learning-based calibration methods for low-cost O3 sensors.” *IEEE Internet of Things Journal*, 2023. [Submitted.]
- [J1] R. Diamant, S. Tomasin, F. Ardizzon, D. Eccher, P. Casari, “Secret Key Generation from Route Propagation Delays for Underwater Acoustic Networks.” *IEEE Transactions on Information Forensics and Security*, 2023. [Accepted.] [DOI] [10.1109/TIFS.2023.3280040](https://doi.org/10.1109/TIFS.2023.3280040)
- [J2] C. Ayimba, V. Cislighi, C. Quadri, P. Casari, V. Mancuso, “Copy-CAV: V2X-Enabled Wireless Towing for Emergency Transport.” *Computer Communications*, vol. 205, pp. 87-96, May 2023. [DOI] [10.1016/j.comcom.2023.04.009](https://doi.org/10.1016/j.comcom.2023.04.009)
- [J3] P. Casari, J. Neasham, G. Gubnitsky, D. Eccher, and R. Diamant, “Acoustic Projectors Make Covert Bioacoustic Signals Discoverable.” *Scientific Reports*, vol. 13, 2023. [DOI] [10.1038/s41598-023-29413-2](https://doi.org/10.1038/s41598-023-29413-2)
- [J4] C. Ayimba, M. Segata, P. Casari, V. Mancuso “Driving under influence: Robust controller migration for MEC-enabled platooning.” *Computer Communications*, vol. 194, pp. 135-147, Oct. 2022. [DOI] [10.1016/j.comcom.2022.07.014](https://doi.org/10.1016/j.comcom.2022.07.014)
- [J5] A. Shastri, N. Valecha, E. Bashirov, H. Tataria, M. Lentmaier, F. Tufvesson, M. Rossi, P. Casari, “A Review of Indoor Millimeter Wave Device-based Localization and Device-free Sensing Technologies and Applications.” *IEEE Communications Surveys and Tutorials*, 2022. [DOI] [10.1109/COMST.2022.3177305](https://doi.org/10.1109/COMST.2022.3177305)
- [J6] M. Paraschiv, R. Padrino, E. Bigal, A. Scheinin, D. Tchernov, P. Casari, A. Fernández Anta, “Classification of Underwater Fish Images and Videos via Very Small Convolutional Neural Networks.” *Journal of Marine Science and Engineering*, special issue on *New Challenges in Autonomous Underwater Networks*, 2022. [DOI] [10.3390/jmse10060736](https://doi.org/10.3390/jmse10060736)
- [J7] F. Granelli, R. Capraro, M. Lorandi, P. Casari, “Evaluating a Digital Twin of an IoT Resource Slice: an Emulation Study using the ELIoT Platform.” *IEEE Networking Letters*, vol. 3, no. 3, pp. 147-151, Sep. 2021. [DOI] [10.1109/LNET.2021.3097556](https://doi.org/10.1109/LNET.2021.3097556)
- [J8] A. Fernández Anta, C. Baquero, P. Casari, et al., “The CoronaSurveys System for COVID-19 Incidence Data Collection and Processing.” *Frontiers in Computer Science*, June 2021. [DOI] [10.3389/fcomp.2021.641237](https://doi.org/10.3389/fcomp.2021.641237)
- [J9] C. Ayimba, P. Casari, V. Mancuso, “SOLR: Short-Term Memory Q-Learning for Elastic Provisioning.” *IEEE Transactions on Network and Service Management*, vol. 18, no. 2, pp. 1850-1869, June 2021. [DOI] [10.1109/TNSM.2021.3075619](https://doi.org/10.1109/TNSM.2021.3075619)
- [J10] Q. F. Lotito, D. Zanella, P. Casari, “Realistic Aspects of Simulation Models for Fake News Epidemics over Social Networks.” *Future Internet*, vol. 13, no. 3, Mar. 2021. [DOI] [10.3390/fi13030076](https://doi.org/10.3390/fi13030076)
- [J11] P. Casari, F. Campagnaro, E. Dubrovinskaya, A. Dagan, S. Dahan, M. Zorzi, R. Diamant, “ASUNA: A Topology Dataset for Underwater Network Emulation.” *IEEE Journal of Oceanic Engineering*, vol. 46, no. 1, pp. 307-318, Jan. 2021. [DOI] [10.1109/JOE.2020.2968104](https://doi.org/10.1109/JOE.2020.2968104)
- [J12] E. Dubrovinskaya, V. Kebkal, O. Kebkal, K. Kebkal, P. Casari, “Underwater Localization via Wideband Direction-of-Arrival Estimation Using Acoustic Arrays of Arbitrary Shape.” *Sensors, Special issue on the Internet of Underwater Things*, July 2020. [DOI] [10.3390/s20143862](https://doi.org/10.3390/s20143862)
- [J13] E. Dubrovinskaya, P. Casari, R. Diamant, “Bathymetry-aided Underwater Acoustic Localization using a Single Passive Receiver.” *Journal of the Acoustical Society of America*, special issue on *Acoustic Localization*, vol. 146, no. 6, pp. 4774-4789, Dec. 2019. [DOI] [10.1121/1.5138605](https://doi.org/10.1121/1.5138605).

- [J14] T. Le Duc, R. García Leiva, P. Casari, P-O Östberg, “Machine Learning Methods for Reliable Resource Provisioning in Edge-Cloud Computing: A Survey,” *ACM Computing Surveys*, vol. 52, no. 5, pp. 94:1-94:39. Sep. 2019. [DOI] [10.1145/3341145](https://doi.org/10.1145/3341145).
- [J15] R. Garcia Leiva, A. Fernandez Anta, V. Mancuso, P. Casari, “A Novel Hyperparameter-free Approach to Decision Tree Construction that Avoids Overfitting by Design,” *IEEE Access*, vol. 7, pp. 99978-99987, July 2019. [DOI] [10.1109/ACCESS.2019.2930235](https://doi.org/10.1109/ACCESS.2019.2930235)
- [J16] C. Fiandrino, P. Casari, H. Assasa, J. Widmer, “Scaling Millimeter-Wave Networks to High Density Deployments and Dynamic Environments,” *Proceedings of the IEEE*, vol. 107, no. 4, pp. 732-745. Apr. 2019 [DOI] [10.1109/JPROC.2019.2897155](https://doi.org/10.1109/JPROC.2019.2897155).
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- [C57] M. Lazzarin, P. Casari, M. Zorzi, "Endowing Underwater Networks with Channel Awareness: a discussion on computational complexity and information size issues," in *Proc. ECUA*, Edinburgh, Scotland, June 2012 **[Invited]**.
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- [C80] F. Guerra, P. Casari, M. Zorzi, "A Performance Comparison of MAC Protocols for Underwater Networks using a Realistic Channel Simulator," *Proc. MTS/IEEE OCEANS*, Biloxi, MS, Oct. 2009.
- [C81] P. Casari, D. Chiarotto, M. Zorzi, "On the Tradeoff between MAC-level Performance Metrics in MIMO Ad Hoc Networks with Imperfect Channel Estimation," *Proc. IWCLD*, Palma de Mallorca, Spain, July 2009.
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- [C85] D. Chiarotto, P. Casari, M. Zorzi, "On the Statistics and MAC Implications of Channel Estimation Errors in MIMO Ad Hoc Networks," *Proc. IEEE GlobeCom*, New Orleans, CA, Nov. 2008.
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- [C91] P. Casari, M. Rossi, M. Zorzi, "Towards Optimal Broadcasting Policies for HARQ based on Fountain Codes in Underwater Networks," *Proc. IEEE WONS*, Garmish-Partenkirchen, Germany, 2008 [Invited].
- [C92] P. Casari, F. Zorzi, M. Zorzi, "Efficient Packet Converge-Casting: Relieving the Sink Congestion in Wireless Sensor Networks," *Proc. IEEE PIMRC*, Athens, Greece, Sep. 2007.
- [C93] P. Casari, A. F. Harris III, "Energy-efficient Reliable Broadcast in Underwater Acoustic Networks," *Proc. ACM WUWNet*, Montréal, Canada, Sep. 2007.
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- [C99] R. Crepaldi, P. Casari, A. Zanella, M. Zorzi, "Testbed Implementation and Refinement of a Range-Based Localization Algorithm for Wireless Sensor Networks," *Proc. IEE Mobility Conference*, Bangkok, Thailand, Oct. 2006.
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- [C104] P. Casari, A. Marcucci, M. Nati, C. Petrioli, M. Zorzi, "A Detailed Simulation Study of Geographic Random Forwarding (GeRaF) in Wireless Sensor Networks," *Proc. IEEE MILCOM*, Atlantic City, NJ, Oct. 2005.
- [C105] P. Casari, M. Levorato, M. Zorzi, "Some Issues Concerning MAC Design in Ad Hoc Networks with MIMO Communications," *Proc. WPMC*, Aalborg, Denmark, Sep. 2005.
- [C106] P. Casari, M. Levorato, M. Zorzi, "On the Implications of Layered Space-Time Multiuser Detection on the Design of MAC Protocols for Ad Hoc Networks," *Proc. IEEE PIMRC*, Berlin, Germany, Sep. 2005.
- [C107] M. Rossi, P. Casari, M. Levorato, M. Zorzi, "Multicast Streaming over 3G Cellular Networks through Multi-Channel Transmissions: Proposals and Performance Evaluation," *Proc. IEEE WCNC*, New Orleans, LA, 2005.

## Editorials

- [E1] K.-H. Park, M. Imran, P. Casari, H. Kulhandjian, H. Chen, A. Abdi, F. Dalglish, "Underwater Wireless Communications and Networking," Editorial paper for a special section of *IEEE Access*, vol. 7, no. 1, pp. 52288-52294, Dec. 2019. [DOI] [10.1109/ACCESS.2019.2908768](https://doi.org/10.1109/ACCESS.2019.2908768).
- [E2] C. C. Tsimenidis, Y. Zakharov, C. Laot, C. Pelekanakis, P. Casari, and A. K. Morozov, "Underwater Communications and Networking," Editorial paper for a special issue of the *Hindawi Journal of Electrical and Computer Engineering*. [DOI] [10.1155/2012/214012](https://doi.org/10.1155/2012/214012).

## ***Cross-disciplinary publications and conference presentations***

- [S5] K. Klaser, P. Casari, R. Cuel, "The future of hybrid work in Italy: a socio-technical-system analysis," *Journal of Management and Organization*, 2022. [Submitted.]
- [S6] K. Klaser, P. Casari, R. Cuel, "Are second-level literature reviews effective? A bibliometric assessment," *International Journal of Management Reviews*, 2023. [Submitted.]
- [J45] K. Klaser, R. Cuel, P. Casari, "Remote work in the United States: a micro-survey on organizational transformation after Covid-19," in *Impresa Progetto*, vol. 2022, no. 3. *Special issue Humans and technology in managing the unexpected*, 2022. [DOI] [10.15167/1824-3576/IPEJM2022.3.1518](https://doi.org/10.15167/1824-3576/IPEJM2022.3.1518)
- [C108] K. Klaser, P. Casari, R. Cuel, "Agile work in Italy and Covid-19: a micro-survey study," *EGOS Colloquium*, 2022.
- [C109] K. Klaser, P. Casari, R. Cuel, "Agile work in Italy and Covid-19: a micro-survey study," *WOA*, 2022.

## ***Posters and demos***

- [P1] E. Dubrovinskaya, A. Shaddad, S. Dahan, R. Diamant, P. Casari, "Validation of Localization via Wideband Acoustic Arrays for Underwater Fauna Monitoring at Sea," **student poster finalist**, MTS/IEEE OCEANS 2021, San Diego, CA.
- [P2] A. Olivier, P. Casari, M. Zorzi, "Modeling the Throughput of 1-persistent CSMA in Underwater Networks," **student poster finalist**, MTS/IEEE OCEANS, Genova, Italy, 2015.
- [P3] G. Toso, R. Masiero, P. Casari, O. Kebkal, M. Komar, M. Zorzi, "A Master/Slave Approach to Command Acoustic Modems during Underwater Networking Sea Trials," **demo presented at ACM WUWNet**, Los Angeles, CA, Nov. 2012.
- [P4] F. Favaro, S. Azad, P. Casari, M. Zorzi, "On the Performance of Unsynchronized Distributed MAC Protocols in Deep Water Acoustic Networks," *ACM WUWNet*, Seattle, WA, Dec. 2011. **Extended poster abstract** published in the conference proceedings.
- [P5] P. Casari, M. Nati, C. Petrioli, and M. Zorzi, "Geographic Forwarding and Adaptive Load Balancing in Wireless Sensor Networks," *ACM MOBICOM*, Los Angeles, CA, Sep. 2006. **Extended poster abstract** published in *ACM Mobile Computing and Communications Review*, vol. 11, no. 2, pp. 53-54.

## ***Divuligation***

- [D1] Speck&Tech talk "Break it up! 5G, cruise control, autonomous vehicle cooperation, and bending the rules", video and slides, 2023.
- [D2] "Immerse yourself in the SYMBIOSIS Project," video and press release, 2018.
- [D3] "Next-generation cloud service provisioning for the Internet of Everything," press release, 2017.
- [D4] "An advanced autonomous platform for securing marine infrastructures," press release, 2017.
- [D5] "Exploiting the near-far effect in underwater acoustic networks," divulgation article for Madri+d, 2016.
- [D6] "Using sound to create underwater networks," divulgation article for Madri+d, 2015.
- [D7] "The Internet of Things: Evolution, Technical Challenges and Applications," 12<sup>th</sup> Annual Seminar on Information Technologies, 2012, published in English in the *Acts and Memories* of the learned society *Accademia Galileiana di Scienze Lettere e Arti*, Padova, Italy, 2013, pp. 9-36 (in collaboration with L. Badia, N. Bui, M. Zorzi).

## Synergistic activities

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- **Scientific Advisory Committee member**
  - ✓ SFI Smart Ocean Center, Bergen, Norway
- **IEEE Senior Member Elevation panel**
  - ✓ Panelist, 03/10/2020
- **Editorial experience**
  - ✓ **Associate Editor**, *IEEE Transactions on Mobile Computing* (May 2018-May 2023)
  - ✓ **Associate Editor**, *IEEE Transactions on Wireless Communications* (Dec. 2018-today)
  - ✓ **Guest Editor**, *Elsevier Computer Networks*, virtual special issue on “Wireless Underwater Networks and Systems,” 2023 (*currently open*)
  - ✓ **Guest Editor**, *Elsevier Computer Communications*, virtual special issue on “Selected and extended papers from the 18th Wireless On-demand Network systems and Services Conference,” 2023. (*currently open*)
  - ✓ **Guest Editor**, *IEEE Access* special section on “Underwater Wireless Communications and Networking,” 2017.
  - ✓ **Guest Editor**, *Hindawi Journal of Electrical and Computer Engineering*, special issue on “Underwater Communications and Networking,” 2012.
- **Co-chair**
  - ✓ International Conference on Computer Communications and Networks (ICCCN) workshop on Edge Computing and Networking, ECN (2019)
  - ✓ International Conference on Computing, Networking and Communications (ICNC), Machine Learning for Communications and Networking (MLCN) symposium (2019)
  - ✓ EuCNC workshop “Fog, Edge and Cloud: Current Challenges and Opportunities” (2018)
  - ✓ IMDEA Networks annual workshop (2017)
- **Technical Program Committee Co-Chair**
  - ✓ IEEE/IFIP WONS 2023
- **Finance Chair**
  - ✓ IEEE SECON 2023
- **Workshop Chair**
  - ✓ ACM CoNEXT 2022
  - ✓ ACM NFV-SDN 2022
- **Publication Chair**
  - ✓ ACM WUWNet (2021, 2022)
- **Publicity Chair**
  - ✓ National Cybersecurity Research Days (2015), León, Spain
  - ✓ ACM WUWNet (2010)
- **Local Arrangements Chair**
  - ✓ EWSN 2018
- **Technical Program Committee Member**
  - ✓ ACM WUWNet (2012-2022)
  - ✓ EuCNC (2018)
  - ✓ European Wireless (2009)
  - ✓ IEEE ICNC (2015)
  - ✓ IEEE IWCLD (2013; 2011; 2009)
  - ✓ IEEE GLOBECOM (2022; 2021; 2017; 2016; 2015; 2007)
  - ✓ IEEE ICC (2017; 2016; 2015)
  - ✓ IEEE INFOCOM (2022; 2021; 2020; 2019; 2018; 2017; 2016)

- ✓ IEEE MASS (2012)
- ✓ IEEE PIMRC (2023)
- ✓ IEEE VTC (2018-Spring; 2017-Fall; 2015-Fall)
- ✓ IEEE WCNEE (IEEE INFOCOM Workshop) 2018
- ✓ IFIP Wireless Days (2019)
- ✓ M2M IOT 2017 (WCNC workshop)
- ✓ MadCom (2017; 2016)
- ✓ Med-Hoc-Net (2018)
- ✓ Med-Com-Net (2022; 2021)
- ✓ UCOMMS (2020/21; 2018; 2016; 2014; 2012)
- ✓ IEEE WCNEE (2017-2022)
- ✓ WiOpt (2022)
- **Member of the selection committee** for the “Best student paper with experiments in memory of Giovanni Toso” at the ACM WUWNet 2015 conference.
- **Participant** in the definition of the NATO Standard JANUS
- **Structured session organizer**
  - ✓ Forum Acusticum 2023 – “Underwater Acoustic Communications”
  - ✓ UCOMMS 2022 – “Underwater Communications Security”
  - ✓ UCOMMS 2020/21 – “Channel-aware security and protocol design”
  - ✓ UCOMMS 2018 – “Applications and requirements”
  - ✓ UCOMMS 2016 – “Communication architectures and novel stacks”
  - ✓ UCOMMS 2014 – “Software-defined modems and communication stacks”
- **Session chair**
  - ✓ IEEE OCEANS (2008 through 2011), ACM WUWNet (2010)
- **Research project proposal reviewer**
  - ✓ Natural Sciences and Engineering Research Council of Canada, NSERC and MITACS (2022, 2021, 2020, 2018)
  - ✓ Halmstad University, Sweden, “Research for Innovation” program (2018)
  - ✓ Argentina’s National Agency for Scientific and Technological Development (2018)
  - ✓ EU COST Action proposals (2016 through 2022)
  - ✓ Research Council of Norway (2017)
  - ✓ Israeli Ministry of Science, Technology and Space (2015, 2022)
  - ✓ Qatar National Research Fund’s National Priorities Research Program (2017; 2013; 2012; 2011; 2010; 2009)
- **PhD thesis evaluation committee member**
  - ✓ Enver Bashirov (University of Padova, Italy, due fall 2023)
  - ✓ Alejandro Blanco Pizarro (University Carlos III of Madrid, Spain, 2022)
  - ✓ Alessandro Galeazzi (University of Brescia, Italy, 2022)
  - ✓ Marco Lombardi (University of Brescia, Italy, 2022)
  - ✓ Lorenzo Ghio (University of Trento, Italy, 2021)
  - ✓ Pablo Jiménez Mateo (University Carlos III of Madrid, Spain, 2021)
  - ✓ Edgar Arribas Gimeno (University Carlos III of Madrid, Spain, 2018)
  - ✓ Roberto Calvo Palomino (University Carlos III of Madrid, Spain, 2018)
  - ✓ Aymen Fakhreddine (University Carlos III of Madrid, Spain, 2018)
  - ✓ José-Pablo Salvador Garcia (University Carlos III of Madrid, Spain, 2016)
- **Reviewer for top-tier international journals and conferences**

## University service

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- Dean's delegate for innovative teaching
  - ✓ University of Trento: 2022 - today
- Executive committee member, Doctoral School of Information Engineering and Computer Science, University of Trento (Nov. 2021 – today)
- PhD admission committee
  - ✓ University of Trento: 2020, 2022
- Committee for the selection of teaching assistants,
  - ✓ University of Trento: 2022-2024; (2020: substitute member)
- Bachelor or Master thesis defense committee member
  - ✓ University of Trento: 16/03/2020, 21/09/2020, 22/07/2021, 14/03/2022, 15/06/2022, 22/07/2022, 15/03/2023
- PhD qualification exam committee member
  - ✓ University of Trento: Retry 2020, 11/2020, 11/2021, 01/2023, 04/2023
- Committee member for PhD progress evaluation, UniTrento's PhD program SPADAST (2021-22)
- Selection committees
  - ✓ "Tecnologo" (University of Trento decree 121/2021)
  - ✓ Postdoctoral fellowship
    - 2021 (3x): University of Trento decrees 136/2021, 173/2021, 258/2021
    - 2022 (1x): University of Trento decree 93/2022

## Talks at international conferences and institutions

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- [T1] "Physical Layer Authentication in Underwater Acoustic Networks with Mobile Devices," ACM WUWNet, Boston, MA, 2022.
- [T2] "Very Small Neural Networks for Optical Classification of Fish Images," MTS/IEEE OCEANS, 2020.
- [T3] "On the Accuracy of Passive Multipath-Aided Underwater Range Estimation," UCOMMS 2016, Lerici, Italy
- [T4] "Security via Underwater Acoustic Networks: the Concept and Results of the RACUN Project," National Cybersecurity Research Days (JNIC), León, Spain, 2015.
- [T5] (invited) "Underwater radiocommunications: an alternative to acoustics?," progress meeting del progetto "Underworld," PLOCAN, Gran Canaria, 2015.
- [T6] "The throughput of underwater networks: Analysis and Validation using a ray tracing simulator," Italian Networking Workshop, Bormio, Italy, 2013.
- [T7] (invited) "Modeling random access in underwater acoustic networks," NTNU, Trondheim, Norway, 2013.
- [T8] (invited) "A study on channel dynamics representation and its effects on the performance of routing in underwater networks," Asilomar conference on Signals, Systems and Computer 2012, Pacific Grove, CA, USA.
- [T9] "Endowing Underwater Networks with Channel Awareness: a discussion on computational complexity and information size issues," ECUA 2012, Edinburgh, Scotland, UK.
- [T10] (invited) "Modeling random access in underwater acoustic networks", University of California at San Diego, 2012.
- [T11] (invited) "Recent results on underwater acoustic communications", Centre de Telecomunicacions Tecnico de Catalunya (CTTC), 2012.
- [T12] "Performance Evaluation of SNR Prediction Schemes in Acoustic Communication Systems using Variable-Rate Modulation," Underwater Acoustic Measurements (UAM) 2011, Kos, Greece.
- [T13] (2x) "On the Performance of Delay-Tolerant Routing Protocols in Underwater Networks" e "On ARQ Strategies over Random Access Protocols in Underwater Acoustic Networks", IEEE/OES OCEANS 2011, Santander, Spain

- [T14] (2x) "A Study of Incremental Redundancy Hybrid ARQ over Markov Channel Models Derived from Experimental Data" e "Performance Evaluation of Random and Handshake-Based Channel Access in Collaborative Mobile Underwater Networks", MTS/IEEE OCEANS 2010, Seattle, WA, USA.
- [T15] Series of talks on the topic "Re-engineering Network Protocols to meet new challenges: the case of underwater communications", at the following universities: UCLA (Los Angeles, CA), ASU (Tempe, AZ), Harvard University (Cambridge, MA), University of Florida (Gainesville, FL), VirginiaTech (Blacksburg, VA), University of Connecticut (Storrs, CT), University of Stuttgart (Germany) and TU Delft (The Netherlands), 2010.
- [T16] "TinyNET: A Tiny Network Framework for TinyOS", IEEE IWCMC 2009, Leipzig, Germany
- [T17] (invited) "Cross-layer design in MIMO ad hoc networks and Wireless Sensor Networks", Centre de Telecomuncacions Tecnico de Catalunya (CTTC), 2009.
- [T18] "MAC Protocols for monitoring and event detection in underwater networks employing a FH-BFSK physical layer", Underwater Acoustic Measurements (UAM), Nafplion, Greece, 2009.
- [T19] "Energy-efficient routing protocols for underwater acoustic networks", Italian Networking Workshop, Cortina d'Ampezzo, Italy, 2009.
- [T20] "A Performance Comparison of MAC Protocols for Underwater Networks using a Realistic Channel Simulator", MTS/IEEE OCEANS, Biloxi, MS, USA, 2009.
- [T21] "On the Design of Routing Protocols in MIMO Ad Hoc Networks under Uniform and Correlated Traffic", IEEE IWCMC, Crete, Greece, 2008.
- [T22] (2x) "A Comparison Between the Tone-Lohi and Slotted FAMA MAC Protocols for Underwater Networks" e "Effective Heuristics for Flexible Spectrum Access in Underwater Acoustic Networks", MTS/IEEE OCEANS, Québec City, Canada, 2008.
- [T23] "A Detailed Simulation Study of Geographic Random Forwarding (GeRaF) in Wireless Sensor Networks", IEEE MILCOM, Atlantic City, NJ, USA, 2005.

## **Languages**

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- Italian: native speaker
- English: proficient
- Spanish: fluent
- French: basic knowledge

## **Reference persons**

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Further references are available upon request.

I give my consent that the information contained in this CV be used for selection and evaluation purposes, in compliance with the current national and international laws.

Sincerely,



Trento, Italy – May 28, 2023.