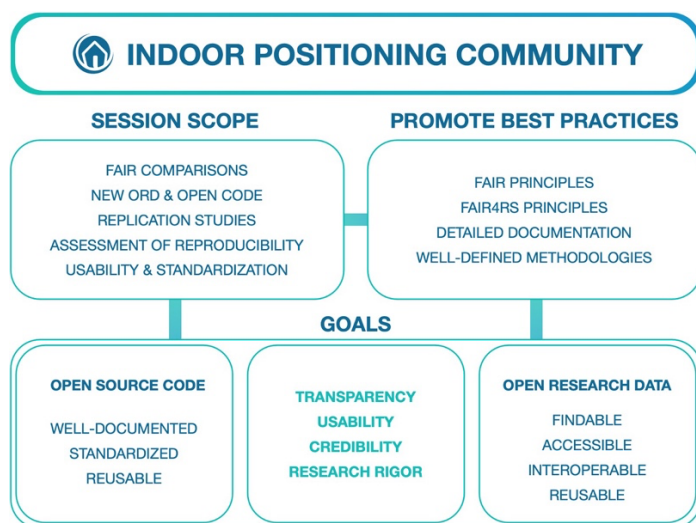


Special Session

Reproducible Research, with Open Data and Code, Plus an Extra Touch of Care

Description of the proposed special session:

The use of Open Research Data (ORD) and Open Code has gained momentum in the indoor positioning community, contributing to more reproducible, verifiable, and replicable research, and facilitating consistent result comparisons. However, the mere availability of data and code is not a sufficient factor for ensuring reproducibility. Best practices, such as adherence to the FAIR (Findable, Accessible, Interoperable, Reusable) principles, detailed documentation, and well-defined methodologies, are crucial in facilitating the meaningful reuse of open resources. This session aims to promote research that facilitates research reproducibility and fair result comparisons, utilizing open data and code.



Novelty and motivation:

The indoor positioning research community has made significant steps toward open and reproducible science by increasingly sharing datasets and code. There is still room for improvement in the level of reproducibility that our works can achieve. The provision of open data and code is a necessary condition for achieving precise and fair reproducibility, but not a sufficient one. Special care should be paid for facilitating the user of these open resources to use them in an efficient way, and compliance with the best practices (such as the FAIR, FAIR4RS principles) is a very relevant starting point. Unlike regular sessions that may touch upon reproducibility, this special session focuses on works that explicitly promote research reproducibility ensuring that shared resources are well-documented, reusable, and conducive to fair experimental comparisons.

By addressing these issues, this session will foster a culture of rigorous, reproducible research and encourage authors to go beyond mere data/code sharing to implement best practices that maximize transparency, usability, and credibility.

Scope of the session:

In this Special Session, we invite authors to submit papers related (but not limited) to:

- Research that performs consistent and fair comparisons with state-of-the-art baselines using open resources.
- New Open Research Data (ORD) and/or Open Code contributions designed with best practices (e.g., FAIR, FAIR4RS principles) to ensure re-usability and reproducibility.

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- Replication studies that evaluate the level of generalization of prior research in different, well-documented settings, relying on Open Data and Code
- Studies assessing the current level of research reproducibility and ORD/code reusability in the indoor positioning community.
- Papers presenting methodologies and tools that improve the usability, documentation, and standardization of ORD/code for reproducibility.

Keywords:

- Open Research Data
- Open Source Code
- Reproducibility
- FAIR Principles
- Replication Studies

Session Chairs (Technical Program Committee):

- Grigorios Anagnostopoulos
- Ivo Silva
- Antonino Crivello
- Paolo Barsocchi
- Cristiano Pendão
- Joaquín Torres-Sospedra

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A short biography of the organizers:

Dr. Grigorios Anagnostopoulos holds a PhD in Information Systems (2017) from the University of Geneva (UNIGE) focused on Indoor Positioning. He has been awarded a *Postgraduate scholarship* by the State Scholarships Foundation (IKY) of Greece and a *Master's Excellence Fellowship* by the Faculty of Science of the University of Geneva. Since April 2018, he has been a Research Associate in the Data Mining and Machine Learning group of HES-SO. In 2020 he received his first grant as a Principal Investigator (P.I.) from the Swiss National Science Foundation (SNSF). He was the recipient of the grant and the P.I. of *LiBertaS*, a project funded by the Hasler Foundation, that focused on label efficiency in indoor positioning systems. He is currently the P.I. of the research project "*CoORDinates - Towards a Consensus-based Open Research Data Standard for the Indoor Positioning Community*". The project is funded by the *SwissUniversities* institution and is directly related to the proposed Special Session. Dr. Grigorios Anagnostopoulos has been an active advocate of Open and Reproducible science, operating as the local node leader of the Swiss Reproducibility Network (swissrn.ch) for his Institution (HES-SO). Dr. Grigorios Anagnostopoulos has successfully organized two special sessions in previous editions of IPIN. He has been a TPC member of the IPIN conference and a regular participant in the IPIN conferences.

Dr. Ivo Silva is a Professor at the School of Engineering, University of Minho and a Researcher at the Algoritmi Research Centre. He received his M.Sc. degree in Telecommunications and Informatics Engineering in 2016 and his Ph.D. degree in the MAP-tele Doctoral Program in Telecommunications from the Universities of Minho, Aveiro, and Porto in 2022. Ivo Silva has co-authored several scientific papers in conferences and journals, and has participated in R&D projects in partnership between academia and industry. His research interests include Industry 4.0, indoor positioning and navigation, vehicle localization, mobile computing, and smart devices.

Dr. Antonino Crivello is a researcher at the Institute of Information Science and Technologies, National Research Council, Italy, since 2014. He received his M.Sc. degree in Robotics and Automation Engineering, University of Pisa, in 2013 and his PhD in Information Engineering and Science, University of Siena, in 2018. He is involved in the organization of IPIN competitions and is an associate editor of the IEEE journal of Indoor and Seamless Positioning and Navigation. He also serves as associate editor of Elsevier journal Expert Systems with Applications. He has been a TPC member of the IPIN conference since 2017. His research interests cover the Internet of Things, with a focus on interoperability, systems evaluation, open research data, and machine learning applied in different scenarios. Additional research interests are related to data spaces and digital agriculture in EU-funded activities.

Dr. Paolo Barsocchi received the M.Sc. and Ph.D. degrees in information engineering from the University of Pisa, in 2003 and 2007, respectively. Since 2017, he has been the Head of the Wireless Networks Research Laboratory. He is currently a Researcher with the Information Science and Technologies Institute (ISTI), National Research Council (CNR), Pisa, Italy. He has coauthored more than 150 articles and has published in international journals and conference proceedings. His research interests include the IoT, cyber-physical systems, indoor localization, and radio channel signal processing. He is a member of numerous program committees and editorial board of international journals and program chair of several conferences.

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Dr. Cristiano Pendão is a Professor in the Department of Engineering, University of Trás-os-Montes and Alto Douro, Portugal and he serves as Full Research Member of the ALGORITMI Research Centre at the University of Minho. Cristiano holds a Ph.D. in Telecommunications/Computer Science Engineering from the Universities of Minho, Aveiro, and Porto (2019). His research interests include mobile computing, positioning and navigation, computer vision/ perception and machine learning. He has co-authored numerous publications in international conferences and journals and has actively participated in several scientific, innovation, and commercial projects within the industry.

Dr. Joaquín Torres-Sospedra received the Ph.D. degree in computer science from Universitat Jaume I, Castelló, Spain, in 2011 focused on Ensembles of Neural Networks. He is now a Senior Researcher with the University of València (València, Spain), working on Indoor positioning and machine learning for industrial applications. He has authored over 180 articles in journals and conferences, and supervised 24 Master's and 7 Ph.D. students. Dr. Torres-Sospedra is the Chair of the IPIN Smartphone-based offsite Competition, promoting the exhaustive evaluation of indoor positioning systems through extensive datasets collected in large areas. He co-organized IPIN 2021, as well as several workshops and tutorials within the IPIN conference since 2016.

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