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Claudia Rinaldi

Personal Information

Date of Birth	[redacted]
Nationality	Italian
Language	Italian (Native) English (Fluent) French (Basic)

Biography

Claudia Rinaldi got her University Degree in Electronic Engineering (cum laude) from the University of L'Aquila, at the Faculty Engineering, within the Course of Telecommunications. The Master Thesis (available both in Italian and in English) was developed at the Royal Institute of Technology (KTH) of Stockholm under the supervision of professor Karl Herik Johansson and professor Niels Moller. In 2006 she graduated in Trumpet at the Conservatory of Music "A. Casella" of L'Aquila and since 2006 she has been a student of Music and New Technologies at the same institute.

In 2005 she had a contract by the Center of Excellence DEWS for research on modelling and optimization of transport techniques for adaptive wireless systems.

In 2005 she participated to the exam for PhD application and obtained the best placement. She thus was Ph.D. student from 2005 to 2009 at the Center of Excellence DEWS of The Faculty of Engineering of the University of L'Aquila where she got the PhD in 2009 with a thesis with the following title: "Advanced Modeling for Wireless Communications and Distributed Control over Wireless Networks".

Since 2005 she was a tutor for students' thesis of both Bachelor and Master Degree. She also made seminars, exercises and exams for the courses of Signal Analysis and Processing, Wireless Communications, Electrical Communications. She was regular teacher for a refresher course on the WiMax Standard at TechnoLabs, an R&D company committed to conceive innovative products and customized services in the field of the Next Generation Telecommunication Networks in L'Aquila (Italy).

She held a PostDoc position from 2009 to 2012 on a research project devoted to the application of wireless sensor networks and digital signal processing algorithms to artistic expressions, with particular focus on electronic music. The result of this research activity has concretized into an artistic and educational installation called RF Sounding.

She held a PostDoc position from January 2013 to December 2013 on a research project called "SMILING (Smart In home LIviNG)": related to the development of innovative technologies for automation and sensing in smart houses, at the Center of Excellence DEWS, University of L'Aquila.

From January 2014 to June 2018, she held a PostDoc position working on the development of millimiter waves transceivers for wireless communications at the Department of Information Engineering, Computer Science and Mathematics of the University of L'Aquila.

In September 2018 she won a public competition for a fixed-term position as a researcher pursuant to Law no. 240/10 of 30 December 2010, in article 24, type A, SSD-ING-INF / 03-TELECOMUNICAZIONI. Moreover, due to her research activity, Claudia has been contract university professor for the Telecommunication Engineering Master program course named Digital Signal Processing and Multimedia, in the academic years 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2016/2017, 2017/2018. She became

tenured professor for the same course (A.Y. 2018/2019, 2019/2020) since the beginning of the fixed-term researcher position in October 2018.

In 2014 she is founding member of the innovative start-up Smartly (from which she left in 2019) for the creation of systems with high technological content in the ICT field, mainly dealing with the study and development of a prototype of anti-abandonment device for newborns.

In 2018 she was a founding member of the Sabina Elettroacustica cultural association (of which she is currently also vice-president), set up with the aim of producing, promoting and spreading the culture and art of sound, for which she in particular deals with composition of concrete music and dissemination of scientific contents related to digital sound processing.

She is a member of the board of directors of the Center of Excellence DEWS since November 2019.

She is the authors of papers published in various conference proceedings and international journals and she has been a reviewer for various international journals.

Her main research activities are focused on digital signal processing algorithms and more in general on the use of technology in artistic fields. Moreover, she is concerned with design, modelling and optimization of communication algorithms with particular emphasis on the physical layer and software defined radio for the development of transmission systems responding to cognitive radios paradigms.

Education

- **2013**: Bachelor of Arts in Electronic Music, Conservatory of Music "A. Casella", L'Aquila, Italy.
- **2009**: Ph.D. on Electrical and Information Engineering, Center of Excellence DEWS, University of L'Aquila, L'Aquila, Italy.
- **2007**: Master of Arts in Trumpet, Conservatory of Music "A. Casella", L'Aquila, Italy.
- **2005**: Master of Science (cum Laude) in Telecommunication engineering, University of L'Aquila, Italy, joint research activity with the Royal Institute of Technology (KTH), Stockholm, Sweden.

Experience

- Academic: Member of the board of directors of the Center of Excellence DEWS, University of L'Aquila, since November 2019.
- Academic 2018/2019, 2019/2020: professor for the Telecommunication Engineering Master program course named Digital Signal Processing and Multimedia
- Academic 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2016/2017, 2017/2018: contract university professor for the Telecommunication Engineering Master program course named Digital Signal Processing and Multimedia
- April-September 2005: professional collaboration with the Center of Excellence DEWS, University of L'Aquila.
- October 2005-present: lecturer for the courses of Signal Analysis and Processing, Wireless Communications, Digital Communications.
- April 2008: lecturer for a course on WiMax Standard at TechnoLabs, L'Aquila
- School years from 2009/2010 to 2015/2016, regular teacher of the facultative course of "Digital Music" at the high school "Liceo Scientifico C. Jucci", Rieti, Italy.
- July 2001-present: effective member (2nd trumpet) of the jazz orchestra Blue Side Big Band, Rieti, Italy
- 2010: music composer for the short film "Un anno dopo", Memory Hunters Project, presented at The "67° Mostra Internazionale d'Arte Cinematografica di Venezia", 2010.

- 2010-present: member of the artistic association “Teatro Rigodon”, Rieti, as musician, music composer and sound engineer.
- 2018 – present: vice-president of the artistic association “Sabina Elettroacustica” (sabinaelettroacustica.it)

Research experience at foreign research laboratories

- August 2004 - February 2005: Visiting scholar at the Royal Insitute of Technology of Stockholm, Sweden. The period concluded with the publication of the Master Thesis titled: “Link-Layer Error Recovery Techniques to Improve TCP over Wireless”.
- July 2006 – September 2006: Ph.D. visiting student at the Royal Insitute of Technology of Stockholm, Sweden.

Research experience at research laboratories

- DEWS (Design Methodologies for Embedded Controllers, Wireless Interconnections and System-on-Chip) November 2019 – present: Member of the board of directors.
- DEWS (Design Methodologies for Embedded Controllers, Wireless Interconnections and System-on-Chip) 2004 – present: Member.

Society

- Smartly s.r.l. Natives of smart living (innovative start up) – associate founder, associate from November 2014 to February 2020.

Research projects roles

- FITOPTIVIS — H2020-ECSEL-2017-2-RIA-two-stage (June 2018 - May 2021): scientific responsible for the University of L’Aquila

  FITOPTIVIS short description
  The objective of FitOptiVis is to develop an integral approach for smart integration of image- and video-processing pipelines for CPS covering a reference architecture, supported by low-power, high-performance, smart devices, and by methods and tools for combined design-time and run-time multi-objective optimisation within system and environment constraints. Low latency Image processing is often crucial for autonomy, and performing the right interaction of the CPS with its environment. The most important CPS in the project have sensors and processing at distributed places. For many reasons (parts of) CPS has to operate on low energy, whereas the complete system needs results with low latency. The focus of the project is on multi-objective optimisation for performance and energy use. However, other qualities, like reliability, security etc. also play a role in the optimisation.

- OPTIMIST – H2020-MSCA-RISE-2019, grant 872866 (May 2020 – ongoing), Optimised video content delivery for 5G mobile users: participant

  OPTIMIST short description
  The advent of 5G networks offers a new challenge for mobile network operators, namely the more efficient delivery of multimedia services. With this in mind, the EU-funded OPTIMIST project aims to develop a modular end-to-end service platform that will offer optimised delivery of personalised video content in 5G mobile networks. It will achieve this by designing and implementing various multi-access-edge-computing (MEC) services as virtual network functions (VNFs). The VNFs will be instantiated and optimised on the fly to construct a video service chain that meets the personalised requirements of 5G mobile video consumers. The project will provide one of the first worldwide implementations of MEC-

enabled service provisioning in 5G networks that is fully compatible with the emerging global reference architectures.

- SafeCOP -- H2020 ECSEL-JU RIA-2015, grant 692529-2 (April 2016 – March 2019) Safe Cooperating Cyber-Physical Systems using Wireless Communication: participant

  SafeCOP short description
  SafeCOP targets cyber-physical systems whose safe cooperation relies on wireless communication. SafeCOP has developped a safety-assurance framework for such systems, which facilitates their certification and market release. The project has also defined a reference "Runtime Manager" architecture that detects abnormal behaviour and triggers a safety degraded mode in case of emergency. SafeCOP has also contributed to developing new standards and regulations by providing certification authorities with scientifically legitimate solutions. The project has also equipped current wireless technologies with a safety protocol to ensure secure cooperation of already existing systems.

- AQUAS -- H2020 ECSEL-JU RIA-2016, grant 737475 (May 2017 – April 2020) Aggregated Quality Assurance for Systems: participant

  AQUAS – Short description
  The aim of the project was the development of a framework allowing to properly manage the complexity of engineering systems, including the convergence of the embedded domain into the open domain. This complexity causes increasing difficulties in guaranteeing safety, security and privacy, particularly in transports, aerospace and industrial control contexts. The developed framework allows to take into account these factors in the lifecycle of products.

Reviewer for:

- International Journals: IEEE Vehicular Technology Magazine, IEEE Transactions on Vehicular Technology, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Proceedings, Wiley International Journal of Robust and Nonlinear Control, Journal of Audio Engineering Society.
- International Conferences: IEEE Vehicular Technology Conference VTC, IEEE International Conference on Communication ICC, IEEE Global Telecommunications Conference GLOBECOM, IEEE Wireless Communications and Networking Conference WCNC, IEEE International Symposium on Personal, Indoor and Mobile Radio Communications PIMRC, International Symposium on Wireless Communication System ISWCS.

TPC Member for:

- TPC "Smart Blue City Conference" (1st 2016 and 2nd 2017)
- WCI-2014, WCI-2018,
- EEWCN-2014,
- ICACCI 2015 Special Session on Energy Efficient Wireless Communications and Networking
- IEEE PIMRC 2017 Workshop WS-07

Editor for:

- Wireless Networks-The Journal of Mobile Communication, Computation and Information (Springer)

Research Activities and Programs

- Main research topics:
  - Applications of the most recent technologies developed in the fields of digital signal processing and wireless communications for artistic and educational purposes
  - Modeling and optimization of algorithms and problems of communication networks
  - Sensor networks
  - Multimedia Signals Compression Techniques

Teaching experiences and programs

- Academic 2018/2019, 2019/2020: professor for the Telecommunication Engineering Master program course named Digital Signal Processing and Multimedia
- Academic 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2016/2017, 2017/2018: contract university professor for the Telecommunication Engineering Master program course named Digital Signal Processing and Multimedia
- October 2005-present: lecturer for the courses of Signal Analysis and Processing, Wireless Communications, Electrical Communications.
- April 2008: regular teacher for a refresher course on the WiMax Standard at TechnoLabs, L'Aquila
- Academic year 2010/2011: tenured professor for the Telecommunication Engineering Master program course named Multimedia Algorithms and Applications
- School years 2009/2010, 2010/2011, regular teacher of the facultative course of "Digital Music" at the high school "Liceo Scientifico C. Jucci", Rieti, Italy.

MATERNITY LEAVE

1. 1st December 2015 - 30th May 2016
2. November 15, 2018 - April 15, 2019

Summary of main research activities

- Modeling of adaptive behaviors of control algorithms over wireless links. This work has been carried on in collaboration with the University of Berkley, California and in particular with prof. Alessandro Abate. The main idea was based on extending the main results obtained in the field of adaptive control algorithms from a deterministic to a probabilistic approach. This has the aim of responding to the main characteristic of a wireless channel: randomness. This way the concepts behind the theory of Stochastic Hybrid Systems have been exploited and extended to the case of a joint design and optimization of control algorithms over a wireless connection. Hybrid Systems have been used to model control signals coming from a controller to a continuous plant and control signals of a wireless channel that has been modeled on the basis of Markov Chains theory.

- Evaluation of the impact of an accurate radio link model on the performance of industrial control networks. This work is the sequel of the previously describe one. The focus of the wireless channel model is toward industrial standard protocols as Wireless HART, IEEE 802.15.4e, ISA 100, which basically share the same physical layer. Currently a Markov chain based model for such a channel is available and published on a conference paper, which takes into account the

presence of one interferer, the modulation format of the physical layer of IEEE 802.15.4e at 2.4 GHz, the presence of power control, the shadowing introduced by the wireless communication. Further work is under development in order to generalize the model for taking into account channel hopping, channel coding, multiple interferers, fast fading.

- RF Sounding is an interactive installation inspired by the metaphor of the impossible human dream to overcome his limits through the possibility of flying. The installation is an equipped area where the user is able to listen to sounds that are usually not perceived by human ears. The sound is produced starting from Radio Frequencies (RFs) arising in the presence of a cellular network, the shift of RF signals to the audible band represents the basic sound to be properly elaborated. This procedure does not arise from a merely scientific operation, but it also requires an emotional participation coming from the awareness of human limits and the will to overcome them. The musical speech wants to present the same audio material from different points of view so as it happens during the dream of flying, where the dreamer discovers scenarios and perspectives that are hidden to human eyes. For this reason the user is provided with the possibility of inducing sounds variations by moving around the equipped area.
  RF Sounding is built inside a hexagon equipped with gate sensors, a subwoofer, six loudspeakers, a receiving antenna and six sensor node. The RF signals gathered by the antenna and the localization data coming from the sensor network are sent to a spectrum analyzer and an elaboration unit in order to process sound and spatialization algorithms.
  The user localization within the system area is carried out in a passive way basing on multistatic radar: the user is not equipped with any active device collaborating with the localization system or aware of its location.
  Spatialization techniques are a function of the user's speed; a speed threshold is indeed established. If the user's speed is below this threshold the loudspeakers-subwoofer systems provides for a slow speed circular moving sound. Other mechanisms are assumed for the case of a fast user's movement: diagonal movement between single loudspeakers, sound motion between pairs of loudspeakers, varying power offset for loudspeaker not directly involved in the primary spatialization.
  The elaborated sounds are based on shifts of RF signals to the audio frequency range, the following type of synthesis are also used: subtractive, additive, granular, wavetable, sample-based, frequency modulation, phase distortion.

- Casa+ is a special flat that has the the ability to control and help its guests by using some devices able to check lighting system, water system, ect, and to interact with people living in the house. The project is totally consistent with the Sue Buckley research fund (http://www.sue-buckley.org/):"Our vision is a world where all young people with Down syndrome are offered the opportunities that they need to achieve their individual potential..."
  All project's activities can be subdivided into three main categories:
  - Home Living: guests are helped in using house's facilities thus the domotic system's actions have to be customized to the particular user. E.g. if someone gets out of a room without switching off the light, the house will remind the guest, calling with his name, that if there is no one left in the room there is no need to keep the light on, and if the user doesn't get the message, than the house takes care of it. The project also plans to help guests in cooking providing an interactive cookbook that will guide them though the recipe giving the needed actions and timing.
  - Communication: the flat is provided with two multi touch computer. By using these devices guests can surf the web though a scalable and customizable browser and also share with each other their multimedia contents such as photos, movies, songs etc.

- Follow Me: This is about a tracking system, made though a specific device or a smartphone, with geo-fencing capabilities. Thanks to a web interface a safe area/path where the user can safetly move can be defined and while the user remains within this area no one is aware of his position. As the user goes out of the safe area, his position is shown on the web interface and an alarm message is sent to the assisting personal. The user can also call the assisting personal in case of emergency by pressing an alarm button.

- Hybrid modeling of handover algorithms over wireless networks based on path loss parameters estimation through the least mean squares algorithm. This work has been carried on in collaboration with the Royal Institute of Technology-Stockholm under the supervision of professor Carlo Fischione, Karl Henrik Johansson and Fortunato Santucci. The handover mechanism that allows a mobile terminal to switch between two adjacent base stations without losing or weakening the connection is a fundamental aspect of a proper design of cellular networks. With respect to previous works of Fortunato Santucci and Nevio Benvenuto an extention of the algorithm has been proposed together with an hybrid modeling approach.

- Design of a generic tranceiver though Software Defined Radio. This is a joint project with the company West Aquila s.r.l. represented by professor Fabio Graziosi and doctor Maurizio Colizza. The aim of the project is to design a mobile gateway able to provide for short, medium and long range communication (in relation to standards IEEE 802.15.1, 802.15.4, 802.11 and WiMax). The first step has seen the development of a generic modulator based on Lookup Tables that allow to change modulation formats.

- Augmented instruments. In the field of contemporary music, recent technologies are an aspect that is actually used to search for innovative forms of expression. Among the possible variations of technological applications in the artistic field, we have focused on the broad branch of augmented instruments, that is, those musical instruments, belonging to the classical tradition, which are typically enriched with technological devices to enhance or modify their characterizing sound or even to generate sounds or multimedia effects completely detached from the acoustic characteristics of the instrument itself, which therefore is used substantially as a controller. In this context, there are many proposals in the literature for augmenting instruments through the use of sensors or devices which may be invasive for the instrument. For this reason, we have moved toward the development of a new branch of augmented tools that are based on video analysis algorithms. In particular, we want to provide the artist with a software tool that allows him to establish what must happen when specific gestures are made on the instrument or in any case by the musician's body. Moreover, we want to give the artist the opportunity of establishing that a specific event on the sound emitted by the instrument could be caused by another element on the scene, e.g. a dancer. At present, two prototypes of augmented instruments have been developed: trumpet and guitar. Ongoing works are focused on the generalization of the video analysis software in real time and the development of analysis algorithms that are as efficient and responsive as possible, also taking into account the type of hardware (camera), which should not be overly expensive. In parallel, innovative algorithms are being developed for audio processing, based on digital filters and waveguides.

- Crazy square was born from an idea of an instrument teacher of lower secondary schools for teaching the first rudiments of music theory through a game called "crazy square". Since the game is aimed at kids who are now digital natives, the transition to digital was substantially compulsory.

This has required the involvement of a large working group, from the software developer, to the designer, from the serious games expert to the psychologist, from the specialist in audio signal processing solutions to the expert in music pedagogy. The project is currently underway and has seen the birth of a first prototype which will be tested on two working groups starting from the beginning of the next school year.

Publications

[1] *Deliverable* FP6 – IST - 511368 Numero: D4d.1.1 Titolo: "Report on control problems in wireless communications"

[2] *Deliverable* FP6 – IST – 511368 Numero: D4d.1.2 Titolo: "Report on distributed control over wireless networks"

[3] **Modeling of adaptive behaviours in control over wireless networks**. M. D. Di Benedetto, A. D'Innocenzo, G. Pola, C. Rinaldi, and F. Santucci. In Proceedings of the 17th International Symposium on Mathematical Theory of Network and Systems. Kyoto, Japan, July 24-28, 2006. 2006. (CONFERENCE)

[4] **Modeling and design of control algorithms over wireless networks**. M. D. Di Benedetto, A. D'Innocenzo, C. Rinaldi, F. Santucci, and E. Serra. In Proceedings of IEEE Multi-conference on systems and Control (MSC), Singapore, October 1-3 2006. invited session. (CONFERENCE)

[5] **A Theoretical Framework for Control Over Wireless Networks** M.D. Di Benedetto and A. D'Innocenzo and G. Pola and C. Rinaldi and F. Santucci, In Proceedings of the 17th International Symposium on Mathematical Theory of Network and Systems, Invited paper in the Mini-Symposium on Distributed Decision-Making Over Ad Hoc Networks, Kyoto, Japan, July 24-28, 2006. (CONFERENCE)

[6] **Performance analysis and optimization of TCP over adaptive wireless links** Di Marco P., Rinaldi C., Santucci F., Johansson K.H., and Moller N., IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Helsinki, Finland, 2006. (CONFERENCE)

[7] **Hybrid Model of Least Squares Handover Algorithms in Wireless Networks** C. Fischione, K. H. Johansson, C. Rinaldi, F. Santucci, Proceedings of 65th IEEE Vehicular Technology Conference, 2007 (CONFERENCE)

[8] **WSN-based Audio Surveillance Systems** R. Alesii, G. Gargano, F. Graziosi, L. Pomante, C. Rinaldi, Proceedings of WSEAS European Computing Conference, Athens, Greece, 2007 (CONFERENCE)

[9] **Advanced Modeling for Wireless Communications and Distributed Control over Wireless Networks** C. Rinaldi, Sixth Annual IEEE International Conference on Pervasive Computing and Communications, Hong Kong 2008. (CONFERENCE)

[10] **Mining Ventilation Automation: Wireless Sensing** C. Fischione, L. Pomante, C. Rinaldi, S. Tennina, F. Santucci,, Communication Architecture and Advanced Services, IEEE Consumer Communications and Networking Conference, 2008, August. (CONFERENCE)

[11] **Exploiting WSN for audio surveillance applications: the VoWSN approach** F. Graziosi, L. Pomante, C. Rinaldi. 1st IEEE Euromicro Conference on Digital System Design (DSD'08), Parma (Italia), Settembre 2008. (CONFERENCE)

[12] **A Generalized Waveform Synthesis Mechanism for Software Radio** M. Colizza, F. Graziosi, C. Rinaldi, IP '08, December, 2008, (CONFERENCE and BEST PAPER AWARD)

[13] **RF Sounding: a system for generating sound from spectral analysis**, F. Graziosi, C. Rinaldi, F. Tarquini, 1st conference on Arts and Technology, September, 2009, published on Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 2010. (BOOK)

[14] Claudia Rinaldi, Luigi Pomante, Fabio Graziosi and Michelangelo Lupone, **RF Sounding: Listening the Cellphone**, 7th International Symposium on Computer Music Modeling and Retrival, June 21-24 2010, Malaga, Spain. (CONFERENCE)

[15] C. Rinaldi, **RF Sounding: tra Arte e Tecnologia**, Atti del Convegno Biennale di Musica Elettronica La Terra Fertile 2010, Sassari 4-6 Giugno, 2010. (CONFERENCE)

[16] Claudia Rinaldi, Luigi Pomante, Fabio Graziosi, Roberto Alesii, Francesco Tarquini, **RF Sounding**, Congresso Nazionale AICA (Associazione Italiana per l'Informatica e il Calcolo Automatico), L'Aquila, Oct. 2010. (CONFERENCE)

[17] Claudia Rinaldi, Luigi Pomante, Roberto Alesii, Fabio Graziosi, **Demo Abstract/RF Sounding**, Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems Zurich, Switzerland - November 3-5, 2010. (CONFERENCE)

[18] C. Rinaldi, **RF Sounding: An Interactive Installation Generating Sounds from Spectral Analysis**, 6es Journées Jeunes Chercheurs en Audition, Acoustique musicale et Signal audio 17-19 novembre 2010, Ircam, Paris. (CONFERENCE)

[19] **A framework for modelling wireless embedded control systems**, C. Rinaldi, A. D'Innocenzo, F. Santucci, M.D. Di Benedetto, ISCCSP 2012. (CONFERENCE)

[20] **A speech indicator for the for the VoWSN approach**, Daniele Ciuca, Luigi Pomante, Claudia Rinaldi, ISCCSP 2012. (CONFERENCE)

[21] **A generalized waveform identifier technique for software radio**, Maurizio Colizza, Claudia Rinaldi, Ivo Joel Senese, ISCCSP 2012. (CONFERENCE)

[22] Claudia Rinaldi, Fabio Graziosi, Luigi Pomante and Francesco Tarquini (2012). **RF Sounding: Generating Sounds from Radio Frequencies,** Management of Technological Innovation in Developing and Developed Countries, Hongyi Sun (Ed.), ISBN: 978-953-51-0365-3, InTech, Available from: http://www.intechopen.com/books/management-of-technological-innovation-in-developing-and-developed-countries/rf-sounding-generating-sounds-from-radio-frequencies (BOOK)

[23] Colizza, M.; Faccio, M.; Rinaldi, C.; Santucci, F.; **A methodology to design an advanced framework for efficient modelling and testing of manets**, Wireless Telecommunications Symposium (WTS), 2012 , vol., no., pp.1-6, 18-20 April 2012 doi: 10.1109/WTS.2012.6266119 (CONFERENCE)

[24] M. Colizza, M. Faccio, C. Rinaldi, F. Santucci, **A Component based architecture for protocol design and development in SDR frameworks**, in Proceedings SDR'12-WInnComm (CONFERENCE)

[25] M. Colizza, L. De Nardis, M. Patrizi and C. Rinaldi, **A novel architecture for a framework to support the storage of network simulation data into distributed storages for remote access**, Emutools 2013 Workshop, Simutools 2013, Cannes, France, March 5-7 2013 (CONFERENCE)

[26] Colizza, Maurizio, Faccio, Marco, Rinaldi, Claudia, Santucci, Fortunato, **A Methodology for Design of Scalable Architectures in Software Radio Networks: a Unified Device and Network Perspective**, Journal Article 2013, Journal of Signal Processing Systems, P 1-9, http://dx.doi.org/10.1007/s11265-013-0767-x Springer. (JOURNAL)

[27] R. Alesii, F. Graziosi, S. Marchesani, C. Rinaldi , M. Santic, F. Tarquini, **Short range wireless solutions enabling ambient assisted living to support people affected by the Down syndrome**, IEEE Region 8 Conference EuroCon 2013, Zagreb, Croatia, July 2013. (CONFERENCE)

[28] L. Pomante, C. Rinaldi, M. Santic, S. Tennina, **Performance analysis of a lightweight RSSI-based localization algorithm for Wireless Sensor Networks**, International Symposium on Signals Circuits and Systems, IEEE Conference ISSCS 2013, Iasi, Romania, July 2013. (CONFERENCE)

[29] F. Battisti, M. Carli, C. Rinaldi, **Perceptual audio watermarking driven by Human Auditory System**, International Symposium on Signals Circuits and Systems, IEEE Conference ISSCS 2013, Iasi, Romania, July 2013. (CONFERENCE)

[30] Marco Pennese, Luigi Pomante, Claudia Rinaldi and Marco Santic, **The Crazy Square: an Interactive Music Learning Environment for Digital Natives**, 10th International Symposium on Computer Music Multidisciplinary Research, Marseille, October, 2013. (CONFERENCE)

[31] L. Pomante, C. Rinaldi, M. Santic, F. Graziosi. **Exploiting latest technologies for RF Sounding's evolution**. Third International Conference on Arts and Technology (ArtsIT 2013), Milano, Marzo 2013. (CONFERENCE)

[32] L. Pomante, C. Rinaldi, M. Santic, S. Tennina, **Performance analysis of a lightweight RSSI-based localization algorithm for Wireless Sensor Networks**, International Symposium on Signals Circuits and Systems, IEEE Conference ISSCS 2013, Iasi, Romania, July 2013. (CONFERENCE)

[33] C. Rinaldi, M. Santic, L. Pomante, F. Graziosi, **Exploiting Latest Technologies for RF Sounding's Evolution**, Springer Berlin Heidelberg, Book Section 2013 Arts and Technology, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 2013, pp. 33 – 40, vol. 116. (BOOK)

[34] **Performance Evaluation of UWB Signaling at mmWaves**, Claudia Rinaldi; Dajana Cassioli; Nikola Rendevski, IEEE International conference on Ultra-Wideband, September 2014. (CONFERENCE)

[35] R. Alesii, F. Graziosi, S. Marchesani, C. Rinaldi, M. Santic, F. Tarquini, **Advanced solutions to support daily life of people affected by the Down syndrome**, 5° Forum Italiano per l'Ambient Assisted Living, Catania, Settembre 2014. (CONFERENCE)

[36] Claudia Rinaldi, Federica Battisti, Marco Carli, and Luigi Pomante, **Design of a non-intrusive augmented trumpet**, Fourth International Conference on Arts and Technology (ArtsIT 2014), November, 2014. (CONFERENCE)

[37] **Performance analysis of a lightweight localization algorithm for WSNs in a real scenario**, Antonio Falcone, Luigi Pomante, Claudia Rinaldi, Marco Santic, International Symposium on Signals Circuits and Systems, IEEE Conference ISSCS 2015, Iasi, Romania, July 2015. (CONFERENCE)

[38] **Comparison of pitch detection algorithms for the Crazy Square project**, Claudia Rinaldi, Giacomo Gustavino, Marco Santic, Luigi Pomante, Marco Pennese, International Symposium on Signals Circuits and Systems, IEEE Conference ISSCS 2015, Iasi, Romania, July 2015. (CONFERENCE)

[39] F. Franchi, F. Graziosi, C. Rinaldi and F. Tarquini, **AAL solutions toward cultural heritage enjoyment**, 2016 IEEE 27th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC), Valencia, 2016. (CONFERENCE)

[40] Leonardo D'Errico, Fabio Franchi, Fabio Graziosi, Claudia Rinaldi, Francesco Tarquini, **Design and implementation of a children safety system based on IoT technologies**, to appear in proceedings of IEEE 2nd International Multidisciplinary Conference on Computer and Energy Science 2017: SpliTech201 (CONFERENCE)

[41] **A novel static magnetic field monitoring apparatus based on videotracking for mr staff safety assessment**. A. Galante, M. Alecci, F. Franchi, C. Rinaldi, F. Federici, VIII annual congress ISMRM ('International Society of Magnetic Resonance in Medicine), Italian Chapter, 2017. (CONFERENCE)

[42] **Real-time monitoring and training for professionals exposed to static magnetic fields**, Galante A., Alecci M., Fantasia M., Rinaldi C., Federici F., Franchi F., IEEE International Symposium on Medical Measurements and Applications, MeMea, June 2018. (CONFERENCE)

[43] L. D'Errico, F. Franchi, F. Graziosi, C. Rinaldi and F. Tarquini. **Experimentation of a Low Cost Public Transport System for People with Visual Disabilities**. Forum Italiano Ambient Assisted Living, ForItAAL 2018, 2-4 July, Lecce. (CONFERENCE)

[44] Santic, Marco; Pomante, Luigi; Rinaldi, Claudia: **A lightweight localization approach for WSNs: performance analysis and validation,** IET Wireless Sensor Systems, 2019, DOI: 10.1049/iet-

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