

*Curriculum Vitae*  
*last updated Feb. 2021*

**Dr. Cristina Emilia COSTA**  
**Electronic/Telecommunications Engineer**  
**Researcher**  
**FBK - Fondazione Bruno Kessler**

## **PROFESSIONAL EXPERIENCE**

**FBK** (from 12/2020 to now) SENSE (Smart Networks and Services) group.  
From 02/2021 Area Head of the SENSE group

**FBK CREATE-NET**, Center for REsearch And Telecommunication Experimentation for NETworked communities, Fondazione Bruno Kessler (FBK), Trento, Italy. Researcher (from 12/2004), and from 1/2018, member of the *Smart Networks and Services* (SENSE) group.

**Research Topics:** Wireless Network Slicing, Network Virtualization, 5G Mobile Networks, Quality of Experience. Multimedia Communications, Interfaces and Interaction.

**Roles & Competencies:** Research & Development. Technology transfer. Research consultancy. Project Management and Team Leadership. Funding proposal preparation and coordination (EU, national).

### **Participation in international projects:**

SPIDER a cyberSecurity Platform for virtualised 5G cybEr Range services (GA ID: 833685) (from 06/2019 to present)

FINS Federating Interface for Network Slicing (02/2018 - 09/2018), ORCA (H2020-ICT-2016-2017 732174) H2020 EU Project Open Call (ORCA-OC1-EXT1), focused on end-to-end slicing support for SDR and SDN.

SESAME (07/2015 - 12/2017), EU project (H2020-ICT-2014-2) focused on the Cloud-Enabled Small Cell (CESC) concept for 5G mobile networks.

Rehab@Home (10/2012 - 12/2014), EU project (FP7-HEALTH-2012 306113) focused on the development of a game based home rehabilitation platform for neurological patients. *Role:* Design and evaluation of the professional station for physiotherapists; development of medical data visualization strategies.

NextMedia, Future Media Internet (11/2009 - 10/2011), EU project (FP7 ICT-2009-4-249065). *Role:* conducting research studies on digital multimedia content and Internet technologies.

SAMBA (System for Advanced interactive dtv and Mobile services in BrAzil) (2007), EU project (FP6 IST-2006-045403) focused on the design, development and evaluation of a framework and platform for the creation of Community Access iDTV Channel services for social inclusion. *Role:* Project Coordinator during the preparation and start-up phases of the project.

Aware Home, sustaining the Quality of Life for an Aging Population: The Living Lab

(2006), international collaboration project with the Georgia Institute of Technology, US-supported by the Italian Ministry of Foreign Affairs (MAE). *Role*: responsible for the planning and set-up of “The Living Space lab,” a home-like environment for conducting experimentation on ambient assisted living; conducting research studies on technologies for ambient assisted living for the elderly.

**Participation in national and local level projects:**

Sperimentazione 5G, “Area 2 - Prato e L’Aquila” (12/2017 – 02/2019), “Study on Radio Access Network Slicing in 5G Networks.” *Role*: internal coordinator for the “Study on Radio Access Network Slicing in 5G Networks” task.

Riabiligame (09/2012 – 09/2014), providing research consultancy services to CoReab srl. during the development of a game based remote orthopaedics rehabilitation platform (Province of Trento funded project). *Role*: responsible for the usability of the game based platform, leading a team of researchers in the evaluation of the product prototype during all development cycles; responsible for the requirements collection and analysis, the design and evaluation of the management interface used by physiotherapists.

Publicamente (4/2012 – 12/2013), providing research consultancy services to Expert System S.p.A and Ymir S.r.l. during the development of a web TV platform for video publishing and sharing (Province of Trento funded project). *Role*: providing research support on the evaluation of interaction and visualization technologies for semantic-based video search interfaces.

I-Theatre (10/2010 – 12/2012), providing research consultancy services to EduTech srl. for the design, development and evaluation of an interactive integrated system for story-creation and multimedia storytelling dedicated to young children of 4-10 years old (Province of Trento funded project). *Role*: project's Principal Investigator, leading a multidisciplinary team of researchers, developers and field experts in all phases of the development of the product prototype.

Triton, “*Trentino Research & Innovation for Tunnel Monitoring*” (8/2008-8/2010), a research project aimed at advancing the state of the art in the management of road tunnels (Province of Trento funded project). *Role*: leading a team of researchers working on the development of video-based algorithms for in-tunnel traffic detection and analysis.

**TiLab, Telecom Italia Lab (formerly CSELT)**, Turin, Italy

Researcher (12/1997-11/2001) member of the Network Security and E-Commerce groups.

**Research Topics:** network security, e-commerce platforms and services.

**Roles & Competencies:**

Analysis and development of e-commerce and security services. Analysis of user requirements and functional specifications for e-commerce and security services. Integration of platforms from different vendors. Technology scouting. Benchmark and evaluation of products (security appliances, e-commerce platforms). Team leader.

Technical support to Telecom Italia's ISP TIN.it in the evaluation and delivery of innovative business services to the Internet users.

Technical and strategic support to Telecom Italia Marketing division.

Technical support to Fintech (Telecom Italia's ICT venture capital fund) in the technical evaluation of funding proposals.

**Relevant activities:**

Participation in the CEN-ISSS (European Committee for Standardization) QoS Workshop, "Quality of Internet service - eEurope: faster Internet for researchers and students" (2000-2001). *Role:* Project Team member, working on the definition of a certification framework for ISPs. Co-editor of the Workshop Agreement CWA 14357 on Quality of Internet Service.

Support for the security evaluation and assessment of a large network for institutional users in the RUPA – Rete Unitaria Pubbliche Amministrazioni project (1999-2000).

*Role:* Task Leader, responsible for Network Security Research Task.

**EDUCATION**

**Doctor of Philosophy** (11/2001-03/2005)

**Dissertation:** "Design principles for embedded multimedia bitstreams transmission over wireless links," under the supervision of Prof. F.B.G. De Natale.

International Graduate School in Information and Communication Technologies.

Department of Information Technologies, University of Trento, Trento, Italy.

**Advanced postgraduate diploma** (9/1996-12/1997)

Master in Telematics and Multimedia Applications.

COREP (Consorzio per l'Educazione Permanente) - Politecnico di Torino, Turin, Italy.

**Qualification to the Profession of Engineer**, Italian Engineer Council's Professional Practice Exam (1996).

**Laurea degree, Msc equivalent** (9/1989-4/1996)

Electronic Engineering, Major in Telecommunications.

## PUBLICATIONS

### Journals

Fabrizio Granelli; Cristina Costa; Jiajing Zhang; Riccardo Bassoli; Frank H. P. Fitzek "Design of an On-Demand Agile 5G Multi-Access Edge Computing Platform Using Aerial Vehicles Journal Article," IEEE Communications Standards Magazine, 4 (4), pp. 34-41, 2020.

I. Giannoulakis, E. Kafetsakis, I. Trajkovska, P.S. Khodashenas, I.P. Chochliourous, C. Costa and P. Bliznakov, "The Emergence of Operator-neutral Small Cells as a Strong Case for Cloud-like Computing at the Mobile Edge," in Transactions on Emerging Telecommunications Technologies, Wiley, vol. 27, issue 9, Sep. 2016. 10.1002/ett.3077

Cristina Emilia Costa. "User centric media research challenges." Multimedia Tools and Applications. May 2014, vol. 70, n. 1, p. 263-265.

Granelli F., Costa C.E., Katsaggelos A.K. "A Study on the Usage of Cross-Layer Power Control and Forward Error Correction for Embedded Video Transmission over Wireless Links." Journal on Advances in Multimedia. January 2007, vol. 2007, Article ID 95807.

Cristina Costa, Francesco De Natale, Fabrizio Granelli. "Quality Evaluation and Non-Uniform Compression of Geometrically Deformed Images Using the Quadtree Distortion Map." EURASIP Journal on Applied Signal Processing. January 2004, n. 12, p. 1899-1911.

Cristina Costa, Maria Petrou, "Automatic registration of ceramic tiles for the purpose of fault detection." Machine Vision and Applications. February 2000, vol. 11, n. 5, p. 225-230.

### Conferences

C. E. Costa, M. Centenaro and R. Riggio, "LoMM: A Monitoring and Management Platform for LoRaWAN Experimentation," 2020 IEEE International Conference on Communications Workshops (ICC Workshops), Dublin, Ireland, 2020, pp. 1-6, doi: 10.1109/ICCWorkshops49005.2020.9145274.

N. Gerosavvas, M. Athanatos, C. Ntantogian, C. Xenakis, C. Costa, A. Mozo, M. Ghering and A. Brignone. (2020) A cyberSecurity Platform for virtualised 5G cybEr Range services - SPIDER. RCIS2020 The 14th International Conference on Research Challenges in Information Science. Virtual Conference. Limassol, Cyprus. Goratti L., Costa C.E., Perez-Romero J., Khodashenas P.S., Whitehead A., Chochliouros I. (2017) The Role of Virtualization in the Small Cell Enabled Mobile Edge Computing Ecosystem. Engineering Applications of Neural Networks. EANN 2017. Communications in Computer and Information Science, vol 744. Springer, Cham.

J. Pérez-Romero, C. Costa, B. Abubakar, E. Panaousis, H. Mouratidis, K.M. Nasr, S. Vahid and K. Moessner, "Self-X functions in cloud enabled small cell networks," EuCNC 2017 (European Conference on Networks and Communications), Special

Session on "Development of a Cloud-enabled Small Cell as a Service concept, for Multi-Tenancy and Edge Services in the 5G Framework," Oulu, Finland, June 12-15, 2017

L. Goratti, C. Costa, J. Pérez-Romero, O. Sallent, C Ruiz, A. Betzler, P.S. Khodashenas, S. Vahid, K. Nasr, B. Abubakar, A. Whitehead, M. Belesioti and I.P. Chochliouros, "Network Architecture and Essential Features for 5G: The SESAME Project Approach", 1st Workshop on 5G – Putting Intelligence to the Network Edge (5G-PINE 2016) / AIAI-2016 International Conference, Thessaloniki, Greece, September 16-18, 2016

C.E. Costa and G. Goratti, "SESAME's Essential Architecture Features", 25th European Conference on Networks and Communications (EUCNC 2016) Special Session on Designing and Developing a Cloud-enabled "Small Cell as a Service" concept, for Multi-Tenancy and Edge Services in the forthcoming 5G Framework, Athens, Greece, June 27-30, 2016.

Gabrielli, S., R. Maimone, C. Costa, A. Ascolese, J. Jonsdottir, W. Klein, and G. Benderski. "A Game-Based Solution for In-Home Rehabilitation." International Conference on Pervasive Games, PERGAMES 2014. Rome, Italy, October 27, 2014.

Cristina Emilia Costa, Marco Ronchetti. "Understanding User Requirements for the Design of a Semantic Digital Library Interface." HCI International 2014. Heraklion, Crete, Greece, 22 - 27 June 2014.

Cristina Costa, David Tacconi, Roberto Tomasi, Flavio Calva, and Valerio Terreri. "RIABLO: a game system for supporting orthopedic rehabilitation." Biannual Conference of the Italian Chapter of SIGCHI 2013, CHIItaly 2013. Trento, Italy, 16-19 September 2013.

David Tacconi, Roberto Tomasi, Cristina Costa, Oscar Mayora. "A system for remote orthopedics rehabilitation." 7<sup>th</sup> International Conference on Pervasive Computing Technologies for Healthcare 2013 (PervasiveHealth 2013). Venice, Italy, 5-8 May, 2013.

Cristina Costa, Aleksandar Matic. "Can Context Awareness and Affective Computing Inform Mobile Games User Research?" CHI 2013 Games User Research Workshop, 2013. Paris, France, April 27<sup>th</sup>, 2013.

Cristina Costa, Alessandra Potrich, Ornella Mich, Roldano Cattoni, Manuela Speranza. "ROBO Park: uno scenario educativo per bambini dai quattro ai dieci anni." DIDAMATICA (Informatica per la Didattica) 2012. Taranto, Italy, 14-16 May, 2012.

Marchesoni, M., and C. Costa, "Augmenting natural interaction in projective capacitive displays with tangible interfaces", Engineering Patterns for Multi-Touch Interfaces, ACM Workshop. Pisa, Italy, 13–16 June 2011.

Jesús Muñoz, Michele Marchesoni, Cristina Costa. "i-Theatre: Tangible Interactive Storytelling." 4<sup>th</sup> International ICST Conference on Intelligent Technologies for Interactive Entertainment, Intetain 2011. Genoa, Italy, 25-27 May, 2011.

C Costa, O Mayora, S Gabrielli. "I-Theatre: developing narratives skills in kindergarten children." CHI 2011 Child Computer Interaction: 2nd CHI workshop on

UI technologies and their impact on educational pedagogy. Vancouver, Canada, May 7<sup>th</sup>, 2011.

Oscar Mayora-Ibarra, Cristina Costa and Andrei Papliatseyeu "iTheater Puppets Tangible Interactions for Storytelling." 3<sup>rd</sup> International ICST Conference on Intelligent Technologies for Interactive Entertainment, Intetain 2009. Amsterdam, the Netherlands, 22-24 June 2009.

Oscar Mayora-Ibarra and Cristina Costa. "The SAMBA Approach to Community-Based Interactive Digital Television". International Conference on Communications and Networking in China, ChinaCom 2007, Special Session on Digital Broadcasting and Mobile Convergence. Shanghai, China, 22-24 August 2007.

N. Scalabrino, Francesco De Pellegrini, Roberto Riggio, Andrea Maestrini, Cristina Costa, Imrich Chlamtac. "Measuring the Quality of VoIP Traffic on a WiMAX Testbed." 3<sup>rd</sup> International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities, Tridentcom 2007. Orlando, USA, 21-23 May 2007.

C. Costa and F. Granelli. "Optimal power control for embedded packet video transmission over WiFi." 1<sup>st</sup> Workshop on multiMedia Applications over Wireless Networks, MediaWiN 2006. Athens, Greece, April 2, 2006 (invited).

O. Mayora-Ibarra and C. Costa. "Sociability Issues for Designing Usable Mobile iTV Applications." CHI 2006, Workshop on Investigating New User Experience Challenges in iTV: Mobility & Sociability. Montreal, Canada, April 22, 2006.

C. Costa, F.G.B. De Natale, F. Granelli. "Embedded packet video transmission over wireless channels using power control and forward error correction." IEEE International Conference on Communications, ICC 2005. Seoul, Korea, 16-20 May 2005.

C. Costa, F. Granelli, A.K. Katsaggelos. "A cross-layer approach for energy efficient transmission of progressively coded images over wireless channels." 12<sup>th</sup> IEEE International Conference on Image Processing, ICIP 2005. Genoa, Italy, 11-14 September 2005.

Cristina Costa, Yiftach Eisenberg, Fan Zhai, Aggelos K. Katsaggelos. "Energy efficient wireless transmission of MPEG-4 fine granular scalable video." IEEE International Conference on Communications, ICC 2004. Paris, France, 20-24 June 2004.

Cristina Costa, Fabrizio Granelli, Francesco De Natale. "Optimal energy distribution in embedded packet video transmission over wireless channels." IEEE International Workshop on Multimedia Signal Processing, MMSP 2004. Siena, Italy, 29 September-1 October 2004.

Cristina Costa, Francesco De Natale, Fabrizio Granelli. "Quality Evaluation and Non-Uniform Compression of Geometrically Deformed Images Using the Quadtree Distortion Map (QDM)." 2003 IEEE-Eurasip Workshop on Nonlinear Signal and Image Processing. Grado, Italy, 8-11 June 2003.

Fabrizio Granelli, Cristina Costa, Riccardo Bassoli, "Multiple Access Control Strategies for Nanoscale Communications and Networking", in John R. Vacca (ed.) *Nanoscale Networking and Communications Handbook*. CRC Press pp. 167-184. July 23, 2019. ISBN 9781498727310

## **EDITORIAL ACTIVITY**

A. Camurri, C. Costa. "Intelligent Technologies for Interactive Entertainment: 4th International ICST Conference, INTETAIN 2011, Genova, Italy, May 25-27, 2011. Revised Selected Papers." Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Springer.

Federico Alvarez, Cristina Costa. "User Centric Media: Second International ICST Conference, UCMedia 2010, Palma de Mallorca, Spain, September 1-3, 2010. Revised Selected Papers." Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Springer.

## **PROFESSIONAL ACTIVITY**

Secretary of the IEEE WIE AG Italy section (2017 - present)

IEEE Senior Member from 10/2015

## **ORGANIZING COMMITTEES**

IEEE MetroInd4.0&IoT 2020. Special Session #15: Gender-inspired approaches to the design of innovative measurement systems and IoT applications, Session Co-Chair.

European Wireless 2020, Special Sessions Chair. Verona Italy.

European Wireless 2020, Tutorials Chair. Verona Italy

Intetain 2011 (ICST International Conference on Intelligent Technologies for Interactive Entertainment), TCP Chair, Genoa, Italy.

UCMedia 2010 (2nd International ICST Conference on User Centric Media), TPC Chair, Palma de Mallorca, Spain.

UCMedia 2009 (2nd International ICST Conference on User Centric Media), Workshops Chair, Venice, Italy.

Securecomm 2005 (First IEEE/CreateNet International Conference on Security and Privacy for Emerging Areas in Communication Networks), Research Demo/Exhibits Chair, Athens, Greece.

SecQoS 2005 (Security and QoS in Communication Networks Workshop), Chair, Athens, Greece.