

# CURRICULUM VITAE

## PERSONAL INFORMATION

Name Xavier Costa-Pérez  
Researcher unique identifier *ORCID*: [0000-0002-9654-6109](https://orcid.org/0000-0002-9654-6109)  
Google Scholar *10.000+* citations, *H-index*: 52, [Link](#)  
Websites [ICREA](#), [Personal](#)

## EDUCATION

PhD degree in Telecommunications Engineering, *Polytechnic University of Catalonia (UPC)*, Spain.  
*Recipient of a national 'Best PhD Thesis' Award (COIT)*  
*Recipient of the 'European doctor' mention for the Ph.D.*

Master of Science (M.Sc) degree in Telecommunications Eng., *Polytechnic University of Catalonia (UPC)*

Bachelor of Science (B.Sc) degree in Telecommunications Eng., *Polytechnic University of Catalonia (UPC)*

## CURRENT POSITIONS

Research Professor, *ICREA, Catalan Institution for Research and Advanced Studies*, Spain

Director of the AI-Driven Systems Research Group at *Fundació Privada i2CAT, Internet i Innovació Digital a Catalunya*, Barcelona, Spain

Scientific Director at *Fundació Privada i2CAT, Internet i Innovació Digital a Catalunya*, Barcelona, Spain

## PREVIOUS POSITIONS (selection)

Deputy General Manager, *NEC Laboratories Europe*, Heidelberg, Germany

Head of 5G/6G R&D, *NEC Laboratories Europe*, Heidelberg, Germany

Chief Researcher, *NEC Laboratories Europe*, Heidelberg, Germany

Senior Researcher, *NEC Laboratories Europe*, Heidelberg, Germany

## HONOURS and AWARDS (selection)

### Academic

Included in Stanford's Top 2% Scientists Worldwide list, both in *career-long* and *single-year* categories

Distinguished Lecturer - IEEE Vehicular Technology Society (VTS)

Best Conference Paper Award of the IEEE Communications Society Technical Committee on Communications Systems Modeling–'DeepCog: Cognitive Network Management in Sliced 5G Networks with Deep Learning'.

IEEE ICC Best Conference Paper Award - 'STORNS: Stochastic Radio Access Network Slicing'

IEEE INFOCOM Best Demo and Poster Runner-up Award – 'Latency-driven Network Slices Orch.'

ACM MOBICOM Best Demo and Poster Runner-up Award – 'vrAIn: A Deep Learning Approach for vRAN'

Best PhD Thesis Award on 'Multimedia Convergence in Telecommunications' from the National Official Association of Telecommunication Engineers (COIT)

### Industry

NEC's Excellent Invention Award for a patent in the *5G O-RAN* product line area

NEC's R&D Award for the contribution to the design of *5G AI-based Network Slicing Solutions*

NEC's R&D Award for the contribution to the design of *virtualized Evolved Packet Core (vEPC) Solution*.

NEC's R&D Award for the contribution to the design and development of *4G Base Stations*

NEC's R&D Award for the contribution to the design of *N900iL, NEC's first 3G/WiFi smart phone*

**MENTORING**

Supervision of multiple **PhD Candidates** at *Polytechnic University of Catalonia, Universidad Carlos III de Madrid (ES), University of Kaiserslautern (DE), etc.* **4 PhDs** already successfully completed  
 Advisor of **15+ MSc. Theses**. *Three students received a MSc. Thesis National Award (COIT)*. Most MSc. Theses resulted in a publication and/or patent application

**LECTURING ACTIVITIES<sup>1</sup> (selection)**

*Distinguished Lecturer*, IEEE Vehicular Technology Society (VTS)  
*AI for Future 6G Systems*, Centre of Innovation for Data Tech and AI (CIDAI)  
*Algorithms for Mobile Networks*, Technischen Universität Darmstadt (TUD)  
*Industrial Colloquiums: Overview of R&D at NEC Laboratories Europe*, TUD  
*Modelling of Networks and Distributed Systems*, Karlsruher Institut für Technologie (KIT)  
*Simulation of Computer Networks*, Universität Mannheim (UMA)

**ORGANISATION OF SCIENTIFIC MEETINGS (selection)**

ACM MOBICOM – General Chair  
 International Symposium on 6G Networking – Distinguished Talks Chair  
 IEEE International Symposium on Wireless Communications (ISWCS) - TPC Chair  
 IEEE International Conference on Sensing, Communications and Networks (SECON) - Demo Chair  
 IEEE World Forum on Internet of Things (WF) – AI and ML - Track Chair  
 AI & Big Data Congress - Track Chair  
 IEEE World Forum on Internet of Things (WF) – 5G and IoT - Track Chair  
 IEEE Wireless Comm. and Networking Conference (WCNC) - TPC Chair  
 IEEE International Conference on Communications (ICC) – Panel Chair  
 IEEE International Conference on Telecommunications (ICT) – Workshop Chair

**SERVING ACTIVITIES (selection)**Journal Editorial Boards

IEEE Transactions on Mobile Computing (TMC)  
 IEEE Transactions on Communications (TCOM)  
 Elsevier Computer Communications Journal (COMCOM)

Guest Editorships

IEEE Open Journal of Commun. Society, Blockchain-based Cooperative Cognitive Comms.  
 IEEE IoT Magazine, Special Issue on Communications for IoT – Connectivity & Networking  
 IEEE Network Journal, Special Issue on Massive Machine Type Communications  
 Elsevier Computer Networks Journal, Special Issue on Green Communications

Technical Program Committees

I have served on the *Technical Program Committee of 60+ conferences and workshops*, including major conferences such as *IEEE INFOCOM, IEEE GLOBECOM, IEEE ICC, IEEE WCNC, IEEE WoWMoM, IEEE PIMRC, IEEE VTC, IEEE GREENCOM, IEEE SECON, EUROPEAN WIRELESS, ACM WINTeCH, etc.*

PhD Tribunals

I have served on the *PhD Tribunals of 15+ PhD candidates* from multiple universities including *Trinity College Dublin, Politecnico di Milano, University Carlos III of Madrid, Polytechnic University of Catalonia, etc.*

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<sup>1</sup> **Full Professor** accreditation positively evaluated by the Science Accreditation Agency (AQU)

## INVITED TALKS

I have given many invited talks at international conferences and general audience venues. Selected sample:

- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob) – *Keynote Speaker* – “Disruptive Technologies for Future 6G Networks”
- European Performance Engineering Workshop (EPEW) – *Keynote Speaker* – “AI for Future 6G Systems”
- 6G Summit – *Speaker* – “Open Radio Access Networks (O-RAN): A 6G Revolution?”
- Polytechnic University of Catalonia (UPC) Open Days Information and Communications Technology (TIC) – *Keynote Speaker* – “Disruptive Technologies for Future Wireless Systems”
- Asia-Pacific NW Operations and Management Symposium (APNOMS) – *Panel Speaker* – “AI for Operating and Managing 5G and Future 6G Systems”
- IEEE International Conference on Communications and Networking (ComNet) – *Keynote Speaker* – “AI-based Automation for Future Networks”
- IEEE Global Communications Conference (GLOBECOM) – *Panel Speaker* – “Challenges for 5G Deployments: Operator and Industrial Perspectives”
- IEEE Communications Society (ComSoc) European and Middle-East (EMEA) - *Panel Speaker* - Industry Panels Initiative
- IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom) – *Keynote Speaker* – “AI-based Automation for Beyond 5G Networks”
- IEEE 5G World Forum – *Panel Speaker* – “The Race to 5G is Not Yet Won: Deployment Challenges and Industry Priorities”
- IEEE Communications Society (ComSoc) – *Industry Webinar* – “AI-based Automation for Beyond 5G Networks”
- IEEE International Conference on Computer Communications (INFOCOM) – *Panel Speaker* – “Big Teams – Big Money – Big Research”
- European Big Data Value Forum – *Speaker* – “AI-based Overbooking of 5G Networks”
- IEEE 5G World Forum – *Speaker* – “Overbooking 5G Networks for Industry Verticals”
- IEEE Conference on Standards for Communications and Networking (CSCN) – *Keynote Speaker* – “Overbooking 5G Networks”
- IEEE 5G Summit – *Speaker* – “5G Networks for Industry Verticals”
- IEEE Wireless Communications and Networking Conference (WCNC) – *Panel Speaker* – “5G and Verticals: The Connected and Automated Driving Case”
- IEEE Global Communications Conference (GLOBECOM) – *Panel Speaker* – “5G Network Slices Management”

## STANDARDIZATION

- ETSI ISAC ISG, founding member
- ETSI RIS ISG, founding member
- OPNFV: *Member of the Open Platform for NFV Technical Steering Committee (TSC)*
- 3GPP: *Co-editor of the RAN Sharing Enhancements SA1 Study Item*
- IEEE 802.11v: *Included in the major contributor list of the IEEE 802.11v standard*
- IEEE 802.11e: *Included in the major contributor list of the IEEE 802.11e standard*
- Experience contributing to standardization and industry certification bodies: 3GPP, O-RAN, IETF, IEEE 802.11/16, WiFi and WiMAX Alliance

## INTELLECTUAL PROPERTY RIGHTS (IPR)

- Filed many patent applications at the European Patent Office<sup>2</sup>
- Obtained 80+ patent grants
- Countries: EU, Germany, USA, China, Japan and Korea

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<sup>2</sup> IPR data publicly available from the *European Patent Office (EPO)*: [Link](#)

**PUBLICATIONS**

My complete list of publications and research impact (H-index: 52, 10.000+ citations) can be found in [Google Scholar](#) and [DBLP](#). In the following, a selection of recent journal and conference publications is provided:

**Journal Publications**

- J1. JX. Salvat-Lozano, A.Garcia-Saavedra, X.Li, X.Costa-Pérez, “AIRIC: Orchestration of Virtualized Radio Access Networks with Noisy Neighbours.” *IEEE Journal on Selected Areas in Communications (JSAC)*, 2024
- J2. A. Albanese, V. Sciancalepore, A. Banchs and X. Costa-Pérez, “LOKO: Localization-Aware Roll-Out Planning for Future Mobile Networks.” *IEEE Transactions on Mobile Computing (TMC)*, 2023
- J3. F.Rezazadeh, L.Zanzi, F.Devoti, H.Chergui, X.Costa-Pérez, C.Verikoukis, “On the Specialization of FDRL Agents for Scalable and Distributed 6G RAN Slicing Orchestration”, *IEEE Transactions on Vehicular Technology (TVT)*, 2023
- J4. JA.Ayala-Romero, A.Garcia-Saavedra, X.Costa-Pérez, G.Iosifidis, “Orchestrating Energy-Efficient vRANs: Bayesian Learning and Experimental Results.” *IEEE Transactions on Mobile Computing (TMC)*, 2023
- J5. A.Romero, C.Delgado, L.Zanzi, X.Li, X.Costa-Pérez, “OROS: Online Operation and Orchestration of Collaborative Robots Using 5G”, *IEEE Transactions on Network and Service Management (TNSM)*, 2023
- J6. JA. Ayala, A.Garcia, X.Costa-Pérez, G.Iosifidis, “EdgeBOL: A Bayesian Learning Approach for the Joint Orchestration of vRANs and Mobile Edge AI.” *IEEE/ACM Transactions on Networking (TON)*, 2023
- J7. O.Adamuz, V.Sciancalepore, P.Ameigeiras, JM.Lopez, X.Costa-Pérez, “A Stochastic Network Calculus (SNC)-Based Model for Planning B5G uRLLC RAN Slices.” *IEEE Transactions on Wireless Communications (TWC)*, 2023
- J8. A.Albanese, V.Sciancalepore, X.Costa-Pérez, “SARDO: An Automated Search-and-Rescue Drone-Based Solution for Victims Localization”, *IEEE Transactions on Mobile Computing (TMC)*, 2022
- J9. JA. Ayala, A.Garcia, M.Gramaglia, X.Costa-Perez, G.Iosifidis, “vrAIIn: Deep Learning Based Orchestration for Computing and Radio Resources in vRANs.” *IEEE Transactions on Mobile Computing (TMC)*, 2022
- J10. V.Sciancalepore, L.Zanzi, X.Costa-Pérez et al., “ONETS: Online Network Slice Broker From Theory to Practice.” *IEEE Transactions on Wireless Communications (TWC)*, 2022
- J11. C. Zhang, X.Costa-Pérez, P.Patras, “Adversarial Attacks Against Deep Learning-Based Network Intrusion Detection Systems and Defense Mechanisms.” *IEEE/ACM Transactions on Networking (TON)*, 2022
- J12. E.Coronado, R.Behravesh, T.Subramanya, A.Fernández-Fernández, M.Siddiqui, X.Costa-Pérez, R.Riggio, “Zero Touch Management: A Survey of Network Automation Solutions for 5G and 6G Networks.” *IEEE Communications Surveys & Tutorials*, 2022
- J13. S.Gonzalez, A.Garcia, A.Oliva, X.Costa-Pérez et al., “Integrating Fronthaul and Backhaul Networks: Transport Challenges and Feasibility Results.” *IEEE Transactions on Mobile Computing (TMC)*, 2021
- J14. FW.Murti, JA.Ayala, A.Garcia, X.Costa-Pérez et al., “An Optimal Deployment Framework for Multi-Cloud Virtualized Radio Access Networks.” *IEEE Transactions on Wireless Communications (TWC)*, 2021
- J15. P. Mursia, V. Sciancalepore, A. Garcia, L. Cottatellucci, X. Costa-Pérez et al., “RISMA: Reconfigurable Intelligent Surfaces Enabling Beamforming for IoT Massive Access.” *IEEE JSAC*, 2021
- J16. L. Zanzi, V. Sciancalepore, A. Garcia-Saavedra, H.D.Schotten, X. Costa-Pérez, “LACO: A Latency-Driven Network Slicing Orchestration in Beyond-5G Networks.” *IEEE Transactions on Wireless Communications (TWC)*, 2021

The complete list of journal, magazine and book chapter publications can be found here: [Link](#)

**Conference Publications**

- C1. L. Lo Schiavo, G.García-Avilés, A.García-Saavedra, M. Gramaglia, M.Fiore, A.Banchs, X.Costa-Pérez, “CloudRIC: Open Radio Access Network (O-RAN) Virtualization with Shared Heterogeneous Computing”, *ACM MOBICOM*, 2024
- C2. JA.Ayala-Romero, A.Garcia-Saavedra, X.Costa-Pérez, “Risk-Aware Continuous Control with Neural Contextual Bandits.” *International Conference on Artificial Intelligence (AAAI)*, 2024
- C3. F.Aslan, G.Iosifidis, JA.Ayala, A.García-Saavedra, X.Costa-Pérez, “Fair Resource Allocation in Virtualized O-RAN Platforms.” *ACM SIGMETRICS*, 2024
- C4. O.Adamuz-Hinojosa, L.Zanzi, V.Sciancalepore, A.Garcia-Saavedra, X.Costa-Perez, “ORANUS: Latency-tailored Orchestration via Stochastic Network Calculus in 6G O-RAN.” *IEEE INFOCOM*, 2024
- C5. JA.Ayala-Romero, L.Lo Schiavo, A.Garcia-Saavedra, X.Costa-Pérez, “Mean-Field Multi-Agent Contextual Bandit for Energy-Efficient Resource Allocation in vRANs.” *IEEE INFOCOM*, 2024
- C6. L.Lo Schiavo, JA.Ayala-Romero, A.Garcia-Saavedra, M.Fiore, X.Costa-Pérez, “YinYangRAN: Resource Multiplexing in GPU-Accelerated Virtualized RANs.” *IEEE INFOCOM*, 2024
- C7. M.Rossanese, A.Garcia-Saavedra, A.Lutu, X.Costa-Pérez, “Data-driven Analysis of the Cost-Performance Trade-off of Reconfigurable Intelligent Surfaces in a Production Network”, *ACM CONEXT*, 2023
- C8. A. Lendinez, L.Zanzi, S.Moreno, G.Garí, X.Li, R.Qiu, X.Costa-Pérez, “Enhancing 5G-Enabled Robots Autonomy by Radio-Aware Semantic Maps.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2023
- C9. O.La Sierra, G.Garcia-Aviles, E.Municio, A.Skarmeta, X.Costa-Pérez, “European 5G Security in the Wild: Reality versus Expectations”, *ACM Conference on Security and Privacy in Wireless and Mobile Networks (WISEC)*, 2023
- C10. A.Albanese, F. Devoti, V. Sciancalepore, M. Di Renzo, X. Costa-Pérez, “MARISA: A Self-configuring Metasurfaces Absorption and Reflection Solution Towards 6G.” *IEEE INFOCOM*, 2022
- C11. L. Lo Schiavo, M. Fiore, M. Gramaglia, A. Banchs, X. Costa-Perez, “Forecasting for Network Management with Joint Statistical Modelling and Machine Learning.” *IEEE WoWMoM*, 2022
- C12. C. Delgado, L. Zanzi, X. Li and X. Costa-Pérez, “OROS: Orchestrating ROS-driven Collaborative Connected Robots in Mission-Critical Operations.” *IEEE WoWMoM*, 2022
- C13. G.García-Avilés, A.Garcia-Saavedra, M.Gramaglia, X.Costa-Pérez, P. Serrano, A. Banchs, “Nuberu: Reliable RAN Virtualization in Shared Platforms”, *ACM MOBICOM*, 2021
- C14. JA. Ayala-Romero, A.Garcia-Saavedra, X.Costa-Pérez, G.Iosifidis, “EdgeBOL: Automating Energy-Savings for Mobile Edge AI.” *ACM CONEXT*, 2021
- C15. A.Okic, L.Zanzi, V.Sciancalepore, A.Redondi, X.Costa-Pérez, “Pi-ROAD: a Learn-as-You-Go Framework for On-Demand Emergency Slices in V2X Scenarios.” *IEEE INFOCOM*, 2021
- C16. J. A. Ayala-Romero, A. Garcia-Saavedra, X. Costa-Pérez, G. Iosifidis, “Bayesian Online Learning for Energy-Aware Resource Orchestration in Virtualized RANs.” *IEEE INFOCOM*, 2021

The complete list of conference publications can be found here: [Link](#)

**GRANTED PROJECTS**

In the following, a selection of the latest major granted projects is provided:

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>
<b>AI4CI</b> <i>Artificial Intelligence for Connected Industries</i> <u>Scientific Coordinator</u>	Digital Europe Programme	9,794,280 €	31/08/27 - 01/09/23
<b>OPEN6G</b> <i>Open RANs for Revolutionary 6G Systems</i> <u>Principal Investigator</u>	Ministerio de Ciencia e Innovación, Spanish National R&D Program (UNICO5G)	2,650,740 €	31/12/26 - 01/01/24
<b>INSTINCT</b> <i>Joint Sensing and Communications for Future Interactive, Immersive, and Intelligent Connectivity Beyond Communications</i>	European Commission (SNS)	4,170,082 €	31/12/26 - 01/01/24
<b>ORIGAMI</b> <i>Optimized resource integration and global architecture for mobile infrastructure for 6G</i>	European Commission (SNS)	4,306,707 €	31/12/26 - 01/01/24
<b>BeGreen</b> <i>Beyond 5G Artificial Intelligence Assisted Energy Efficient Open Radio Access Network</i>	European Commission (SNS)	4,717,669 €	30/06/25 - 01/01/23
<b>Daemon</b> <i>Network intelligence for aDAptive and sElf-Learning MOBILE Networks</i>	European Commission (H2020)	4,997,025 €	31/12/23 - 01/01/21

**PAST EXPERIENCE LEADING MAJOR EU RESEARCH PROJECTS (selection)**

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Leadership Role</i>
<b>5G-TRANSFORMER</b> 5G Mobile Transport Platform for Verticals	European Commission	8.510.582€	30/11/19 - 01/06/17	<u>Technical Manager</u>
<b>5G-CROSSHAUL</b> The 5G Integrated Fronthaul/Backhaul	European Commission	8.492.038€	31/12/17- 01/07/15	<u>Technical Manager</u>
<b>FLAVIA</b> FLeXible Architecture for a Virtualizable wireless future Internet Access	European Commission	6.088.414€	30/06/13- 01/07/10	<u>WP Leader</u>