Curriculum Vitae of Gonzalo Seco-Granados (abridged version)

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Full list of publications: http://spcomnav.uab.es/?section=3&publications&id=91

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Vita

Gonzalo Seco-Granados received the Ph.D. degree on Telecommunications Engineering from Universitat Politècnica de Catalunya in 2000 and an MBA from IESE in 2002.

From 2002 to 2005, he was member of the technical staff of the European Space Research and Technology Center (ESTEC) of the European Space Agency (ESA) in The Netherlands. Since 2006, he is with the Department of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, being Associate Professor until 2018, and Professor onwards. He has been coordinator of the Telecommunications Engineering degree (2007-2011) and vice-director of School of Engineering (2011-2014). He coordinates the SPCOMNAV group, dedicated to the research on signal processing mainly applied to wireless communications and positioning systems. Gonzalo

Seco-Granados has authored over 68 journal papers, 190 conference papers, 2 patents under industrial exploitation, and he has been principal investigator of over 30 research projects.

He has held visiting appointments at Universidad de Vigo (Spain), Brigham Young University (USA), and University of California in Irvine (USA). In March 2009, he was granted one of the six UAB Chairs of Technology and Knowledge Transfer "UAB Research Park – Santander. In 2015 and 2019, he was Fulbright Visiting Scholar at University of California, Irvine. His research interests lie in the area of signal processing for localization with satellite and terrestrial systems. He has made seminal contributions in the use of antenna arrays in GNSS receivers, in high-sensitivity GNSS receivers, and in the use of millimeter wave signals and massive MIMO technologies for localization.

1. Professional and Education Profile

1.1. Education

- 09/2000 – 04/2002, Master in Business Administration (MBA), IESE - Universidad de Navarra, Barcelona, Spain (including a four-month exchange at Columbia University, NY).
- 01/1997 – 12/2000, Ph.D. (cum laude) in Telecommunications/Electrical Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain (including a three-month visit at Brigham Young University). Dissertation: "Antenna Arrays for Multipath and Interference Mitigation in GNSS Receivers," Advisor: Prof. Juan A. Fernández Rubio. Highly cited PhD thesis (40+ citations in Google Scholar)
- 09/1990 – 11/1996, Telecommunications Engineer (equivalent to Master of Science in Electrical Engineering), Universitat Politècnica de Catalunya, Barcelona, Spain. Qualification: maximum possible mark, 10 over 10.

1.2. Academic Positions

Since 01/2006	Professor (since 06/2018) Associate Professor (01/2006 - 05/2018) Department of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, Spain Founder and Director of the research group on Signal Processing for Communications and Navigation *University Appointments / Additional Responsibilities:* • 05/2011 – 06/2019: Vice-Dean of Finance and Infrastructure, School of Engineering. • 2009 – 2010: Director of the Chair of Technology Transfer "UAB Research Park– Santander" • 03/2010 – 04/2011: Director of the Telecommunication Systems Engineering Degree (EHEA) and the Telecommunication Engineering Degree. He has been the promoter and responsible for obtaining the acceptance of the new Telecommunication Systems Engineering Degree (EHEA). • 03/2007 – 02/2010: Director of the Telecommunication Engineering Degree • 01/2006 – 02/2007: Coordinator of Student International Exchanges
Since 01/2020	Founder and Scientific Advisor of the start-up company Loctio (www.loctio.com)
Since 01/2017	Researcher at Institute for Spatial Studies of Catalonia (www.ieec.cat). Since 2019, member of the Management Board of the institute.

07/2022 – 12/2022	Fulbright Visiting Professor, University of California, Irvine
07/2019 – 11/2019	Fulbright Visiting Professor, University of California, Irvine
06/2015 – 12/2015	Fulbright Visiting Professor, University of California, Irvine
10/2005 – 12/2005	Visiting Professor, Department of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, Spain

1.3. Industrial Positions

07/2002 – 09/2005	Radionavigation Systems Engineer at the RF Payload Systems Division of the European Space Research and Technology Center (ESTEC) of the European Space Agency, The Netherlands. Member of the technical staff. Responsible for the R&D on GNSS receivers and indoor-positioning.
05/2001 – 07/2001	Analyst, Winphoria Networks (later adquired by Motorola), Madrid, Spain

1.4. Principal Service Positions, Awards and Distinctions

- IEEE Fellow 2023, elevated by the IEEE Signal Processing Society, for contributions to signal processing for global navigation satellite systems and 5G localization systems.
- December 2022: 2021 IEEE Signal Processing Society Best Paper Award
- 2020-2024 – ICREA Academia Fellow (grant of 200,000€), www.icrea.cat
- 01/2019 – present: President of the Spanish Chapter of the IEEE Aerospace and Electronic Systems Society.
- 01/2018 – Elected member of the Sensor Array and Multichannel Technical Committee of the IEEE Signal Processing Society for the term 2018 - 2020. Reelected for 2021-2023. Member of the Technical Directions Subcommittee 2018-2019. Area Chair for Beamforming and space-time processing 2020-2021.
- Elected member of the EURASIP Technical Area Committee on Signal Processing for Multisensor Systems, 2022 – 2024.
- 2014-2018– ICREA Academia Fellow (grant of 200,000€).
- 03/2009 – present: Director of Chair of Technology and Knowledge Transfer "UAB Research Park – Santander". Initial endowment: 100,000€
- 11/2008: IEEE Senior Member

2. Research

2.1. Funded Research Projects (partial list)

Summary of funding: ~4M€ as PI since 2006 (approximately 300k€/year on average)

1. 02/2022- 02/2023, "SINGPOS – Single-Node Positioning", AO/2-1813/21/NL/CRS/mkn, European Space Agency, Partners: UAB (coordinator), Loctio (Greece). Budget: 110,000€. **Role: PI**.
2. 09/2021-09/2023, "EGNOS-NEXT – EGNOS Evolutions Systems Engineering (Phase 0/A1)", AO/1-9933/20/NL/ND, European Space Agency, Partners: GMV (Spain), Qascom (Italy). Budget: 100,000€. **Role: PI** at UAB.

3. 02/2021- 02/2023, “LEO-PNT-USER - Proof of Concept of user segments technologies for complementary LEO system”, AO/1-10372/20/NL/CRS, European Space Agency, Partners: Thales Alenia Space (France), Orolia (France), Saphirion (Switzerland). Budget: 65,000€. **Role: PI** at UAB.
4. 09/2019 – 03/2021, “INNUENDO - Enhanced GNSS Signal In Space and User Receiver Processing”, AO-1-9585/19/NL/CRS, European Space Agency, Partners: Airbus (Germany), Tampere University (Finland), LINKS (Italy), Bundeswehr University Munich (Germany). Budget: 41,800€. **Role: PI** at UAB.
5. 12/2018 – 12/2020, “FUNTIMES-2: Future Navigation and Timing Evolved Signals – 2”, 630/PP/GRO/RCH/17/9877, European Commission. Partners: LINKS (Italy), Airbus (Germany), ENAC (France), Bundeswehr University Munich (Germany). Budget: 60,000€. **Role: PI** at UAB.
6. 04/2018 – 09/2019, “GINTO5G: GNSS Integration into 5G Wireless Networks”, AO/1-9045/17/NL/AS, European Space Agency. Partners: GMV (Spain), Telefonica (Spain) DLR (Germany), Fraunhofer Institute (Germany), u-blox (UK). Budget: 185,000€. **Role: PI** at UAB.
7. 04/2018 – 09/2019, “Galileo 2nd Generation Open Service Bread-board Emulating Mass-Market Platforms”, workorder from the Galileo 2nd Generation Test User Receiver Technologies Framework, European Space Agency, Partners: GMV (Spain). Budget: 70,000€. **Role:** Participant.
8. 09/2018 – 08/2021, “Accurate Vehicle Localisation using 5G and GNSS”, Networking/Partnering Initiative (NPI), European Space Agency. Budget: 90,000€ VAT excl. **Role: PI**.
9. 03/2018 – 02/2021, “Technical support to FANTASTIC, ESCAPE and OS-NMA projects”, specific contract GSA/OP/12/16/Lot1/SC2 from Integration of Fundamental Elements – Lot 1: Technology Support Platform, European GNSS Agency, Partners: Everis (Spain), Universitat Politècnica de Catalunya (Spain), INECO (Spain). Budget: 102,750€. **Role: PI** at UAB.
10. 02/2018 – 01/2020, “Technical consulting assistance and expertise to the GSA in the areas of rail, maritime and on-site technical support”, specific contract GSA/OP/12/16/Lot1/SC1 from Integration of Fundamental Elements – Lot 1: Technology Support Platform, European GNSS Agency, Partners: Everis (Spain), Universitat Politècnica de Catalunya (Spain), INECO (Spain), Cranfield University (UK). Budget: 17,900€. Role: participant.
11. 01/2017 – 12/2019, “Consolidated Research Group – Program SGR: Research Group on Signal Processing for Communications and Navigation SPCOMNAV,” 2017 SGR 1781, Generalitat de Catalunya. Budget: 36,000€. **Role: PI**
12. 10/2017 – 07/2018, “GNSS Indoor/Outdoor Processing for Indoor Propagation Channel Characterization”, 4000122035/17/NL/AF/hh. UAB budget: 36,000€. Role: participant.
13. 01/2018 – 12/2020, “GGCAR: Accurate and Secure Localization on Vehicular Networks Using GNSS and 5G”, TEC2017-89925-R, Proyectos de I+D+I “RETOS INVESTIGACIÓN”, Ministerio de Economía, Industría y Competitividad. Budget: 146,894€. **Role:** participant (PI: J. A. López-Salcedo).
14. 03/2017 - 07/2019, “FANTASTIC - Field Aware Navigation and Timing Authentication Sensor for Timing Infrastructure and Centimeter Level Positioning”, Galileo Supervisory Authority (GSA), GSA/GRANT/01/2016. Partners: Septentrio (Belgium), Fraunhofer IIS (Germany), GMV (Spain), Istituto Superiore Mario Boella (Italy). UAB budget: 126,153€ VAT and co-financing excl. **Role: PI** at UAB.
15. 12/2016 - 05/2018, “SW/HW Tools for Cloud, Hybrid and 5G Positioning”, European Space Agency, ESA RFP/3-14763/16/NL/GLC. Budget: 350,000€ VAT excl. Role: Participant (PI: J. A. López-Salcedo).
16. 10/2016 - 07/2017, “Advanced GNSS Reference Station Breadboard”, European Space Agency, AO7935 - General Support Technology Programme 6 - Element 2. Partners: Indra (Spain). UAB budget: 98,250€ VAT excl. **Role: PI** at UAB.
17. 10/2016 - 12/2017, “HO-GNSS: Techniques for GNSS Navigation at Hight Orbits (GEO/GTO/HEO)”, 4000117413/16/NL/LF, European Space Agency. Partners: GMV (Spain), Airbus (Germany). UAB budget: 35,000€ VAT excl. Role: Participant.
18. 10/2015 – 04/2017, “E-GNSS Blind Signal Processing Validation and Performance Methodology Development”, European Space Agency. Budget: 186,000€ VAT excl. **Role: PI**.
19. 09/2015 - 03/2017, “SCARBOC - Techniques for Subcarrier Resolution in High-order BOC signals and Performance Analysis in Realistic Environments”, European Space Agency, European GNSS Evolution Programme ID89.18. Partners: GMVIS (Portugal), Tampere University of Technology (Finland). UAB budget: 20,000€ VAT excl. **Role: PI** at UAB.
20. 01/2015 – 12/2017, “Positioning in Urban and Adverse Scenarios using GNSS and 5G Systems (GGPOS)”, Proyectos de I+D+I “RETOS INVESTIGACIÓN”, Ministerio de Economía y Competitividad. Budget: 134,552€. **Role: PI**.

21. 09/2014 – 03/2016, "HISENS – Techniques for High Sensitivity GNSS Receivers", AO/1-7763/13/NL/AK, European Space Agency. Partners: GMVIS SKYSOFT (Portugal), Ruag Space GmbH (Austria). Budget: 63,000€ VAT excl. **Role: PI** at UAB.

22. 05/2014 – 04/2016, "Development and Test of Assistance Technologies for Navigation Receivers", 4000110586/14/NL/HK, European Space Agency. Budget: 100,000€ VAT excl. **Role: PI**.

23. 03/2014 – 02/2017, "Satellite/terrestrial hybrid localization systems", Networking/Partnering Initiative (NPI), European Space Agency. Budget: 90,000€ VAT excl. **Role: PI**.

24. 10/2013 – 09/2014, "ADAPT - Adaptive Tracking Techniques for Navigation Signals", AO/1-7389/12/NL/AK, European Space Agency. Partners: GMVIS SKYSOFT (Portugal), École Polytechnique Fédérale de Lausanne – EPFL (Switzerland). Budget: 70,000€ VAT excl. Role: Participant (PI: J. A. López-Salcedo).

25. 10/2013 – 09/2014, "Hybrid Navigation and Mass Market Receivers Platform", European Space Agency. Budget: 70,000€ VAT excl. **Role: PI**.

26. 01/2013 – 12/2013, "Review of the Design of Data Collection System of the Meteosat Third Generation", Mier Comunicaciones S.A. Budget: 10,000€ VAT excl. **Role: PI**.

27. 06/2012-06/2014, "IGNSSRX - Integrity GNSS Receivers", ENTR/129/PP/ENT/SP2/11/5502, Enterprise and Industry Directorate-General, European Commission, Partners: GMV (Spain), Nottigham Scientific Ltd (UK), Transport Research Laboratoy (UK). UAB budget: 197,692€ VAT excl. **Role: PI** at UAB.

28. 10/2012 – 9/2016, "Multi-technology positioning professionals", Marie Curie Action, Multi-Partner Initial Training Network, Partners: Tampere University of Technology, Chalmers Technical University, University of Nottingham, Pildo Consulting, Vrije Universiteit Amsterdam, Fastrax, GMV Aerospace & Defense, Ptolemus, Honeywell International. UAB budget: 236,032€ VAT excl. **Role: PI** at UAB.

29. 11/2012 - 12/2013, "MOON-GNSS – Weak GNSS Signal Navigation on the Moon", AO/1-7097/12/NL/AF, European Space Agency. Partners: GMV Aerospace & Defense S.A.U. UAB budget: 67,500€ VAT excl. **Role: PI** at UAB.

30. 07/2012 - 06/2013, "ROCAT – Techniques for Robust Carrier Phase Tracking Under High Dynamic, Strong Fading and Scintillation Conditions", AO/1-6918/11/NL/AT, European Space Agency. Partners: GMVIS Skysoft (Portugal), Instituto de Telecomunicações (Portugal), UAB budget: 69,160€ VAT excl. Role: Participant (PI: J. A. López-Salcedo).

31. 2012-2014, "Ambiguity Mitigation in High-Order BOC Signals," EIC-ESA-2011-0080, National Program for the Internationalization of I+D – Subprogram for the Specialization in Scientific Facilities and International Organizations, Spanish Ministry of Economy and Competitiveness. Destination: European Space Technology and Research Center of the European Space Agency, (129,247€). **Role: PI**.

32. 10/2012 – 09/2013, "California-Catalunya Engineering Innovation Program: Multicarrier Signals for Combined Positioning and Communication Systems: Contributions to Positioning in LTE," Pete Balsells Foundation and the Henry Samueli School of Engineering at University of California in Irvine, ($12,500). Role: participant (PI: J. A. López-Salcedo and A.L. Swindlehurst).

33. 2012-2014, "Signals for Combined Communication and Navigation Systems: Theoretical Bounds, Design and Implementation Aspects (SICCNALS)," TEC2011-28219, Project for Fundamental Research, Spanish Ministry of Science and Innovation, (53,845€). **Role: PI**.

34. 2011-2013, "ESA PRESTIGE Programme: Practical Design of Multicarrier Signal Synchronization Schemes in Realistic Navigation Channels," European Space Agency, (60,000€). **Role: PI**.

35. 2011-2012, "California-Catalunya Engineering Innovation Program: Multicarrier Signals for Combined Positioning and Communication Systems: Contribution to the Scheduling and Synchronization in LTE," Pete Balsells Foundation, Generalitat de Catalunya, the Henry Samueli School of Engineering at University of California in Irvine, ($40,000). Role: participant (PI: J. A. López-Salcedo and A.L. Swindlehurst).

36. 2010-2011, "California-Catalunya Engineering Innovation Program: Multicarrier Signals for Combined Positioning and Communication Systems: Design and Implementation Aspects," Pete Balsells Foundation, Generalitat de Catalunya, the Henry Samueli School of Engineering at University of California in Irvine, ($41,000). **Role: Co-PI** with A. Lee Swindlehurst.

37. 2009-2010, "California-Catalunya Engineering Innovation Program: Signal Design for Combined Positioning and Communications Systems," Pete Balsells Foundation, Generalitat de Catalunya, the Henry Samueli School of Engineering at University of California in Irvine, Indra Espacio S.A, ($34,989). **Role: Co-PI** with A. Lee Swindlehurst.

38. 2011, "Design of Code-Carrier Coherence (CCC) algorithms for EGNOS NLLP ground stations: test phase", Indra Espacio, (25,520€). Role: participant (PI: J.A. López-Salcedo).

39. 2009-2010, "ADIBEAM - Adaptive Digital Beamforming Techniques for GNSS Receivers," European Space Agency. Partners: Indra Espacio (Spain), DLR (Germany), TTI (Spain). UAB budget: 74,240€. **Role: PI** at UAB.

40. 2009-2010, "DESSO Satellite – Development of Satellite TV Services for Uruguay," Spanish Ministry of Industry, Tourism and Commerce. Partners: Indra, Hispasat, Tmira, Sidsa, Fundación Bip-Bip (UAB budget: 50,000€). Role: participant (PI at UAB: J. López-Vicario).

41. 2009-2010, "XALOC – Sensor Networks for the Management of Public Parking Spaces and Localization," 2009REGIO 00016, Generalitat de Catalunya. Partners: Worldsensing S.L, CTTC (UAB budget: 51,673€). Role: participant (PI at UAB: J. López-Vicario)

42. 2009-2012, "SINTONIA – Unmaned Systems for Null Environmental Impact," Center for the Technological Industrial Development – Spanish Ministry of Science and Innovation. Partners: Boeing, Adex, Aernnova, Amper, Applus, Cesa, Dmp, Greenpower, Guascor, Indra, Inpromat, Insa, Integrasys, Mib, Mdu, Protos, Sener, Sertec, TTI, UAV Navigation, Xsat (UAB budget: 183,553€). Role: co-PI at UAB (PI at UAB: J. López-Vicario).

43. 2009-2010, "Design of Code-Carrier Coherence (CCC) algorithms for EGNOS NLLP ground stations," Indra Espacio, (34,800€). Role: participant (PI: J.A. López-Salcedo).

44. 2009-2013, "Emerging Research Group – Program SGR: Research Group on Signal Processing for Communications and Navigation SPCOMNAV," 2009 SGR 298, Generalitat de Catalunya, (41,600€). **Role: PI**.

45. 06/2009-06/2011, "PEGASE - Provision of Expertise to GSA And Support to Enabling activities: Technical support for the GAMMA-A FP7 project," Galileo Supervisory Authority / European Commission, (32,800€). **Role: PI**.

46. 2009-2011, "Design of Location-Aware Physical and Link Layers in Cooperative Communication Systems (LAWCOM)," TEC2008-06305, Project for Fundamental Research, Spanish Ministry of Science and Innovation, (57,233€). **Role: PI**.

47. 2008-2011, "INTEGRA – Research on Technologies for Border Control and Migration Management," Center for the Technological Industrial Development – Spanish Ministry of Science and Innovation. Partners: Telvent, Knosos, Aertec, Amper Programas, Amper Sistemas, Biometric, Boeing, GMV, Integrasys, Isdefe, Ngaro, S21sec, SHS, Vaelsys (UAB budget: 679,620€). **Role: PI** at UAB.

48. 2008-2012, "RF/Microwave Communication Subsystems for Emerging Wireless Technologies", COST Action ic0803, Role: PI at UAB. Substitute Member of the Management Committee until May 2011; Member of the Management Committee from May 2011 until the end of the Action.

49. 2007-2009, "DINGPOS - Signal Processing Techniques and Demonstrator for Indoor GNSS Positioning," European Space Agency, Partners: GMV, Thales Alenia Space France, Skysoft, Nemerix, Nokia, Advanced Digital Institute. UAB budget: 79,986€. **Role: PI** at UAB.

50. 2007-2010, "ATLANTIDA – Application of new Unmaned Air Vehicles Technologies to the Research and Development of Automatic Traffic Management," Center for the Technological Industrial Development – Spanish Ministry of Science and Innovation, Partners: Boeing, Atos Origin, Indra, Iberia, Aernnova, Aerovision, Aertec, Caton, GMV, Indra Sistemas, Isdefe, Insa, Intelligent Dialogue Systems, Integrasys, MDU, Altran, Qualitas Training, TCP, TTI. UAB budget: 232,000€. **Role: PI** at UAB.

51. 2007-2008, "INTERRURAL – Rural Internet Access with Heterogenous and Itinerant Networks," Spanish Ministry of Industry, Tourism and Commerce, Partners: IBER-X, Hispasat, Telefonica I+D, Gigle Semiconductor. UAB budget: 57,000€. **Role: PI** at UAB.

52. 2006-2007, "Quantum Satellite Communications," Spanish Ministry of Science and Education, (49,800€). **Role: PI**.

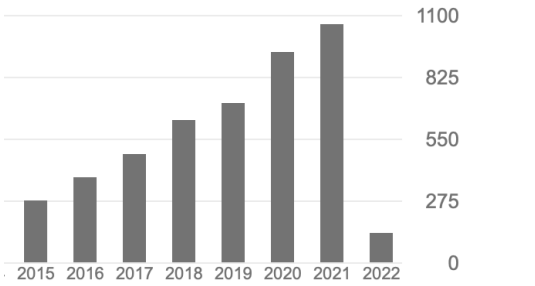
53. 2006-2008, "CDMA Algorithms for the Galileo Mission Receiver," Mier Comunications S.A., (54,868€). **Role: PI**.

2.2. Publications

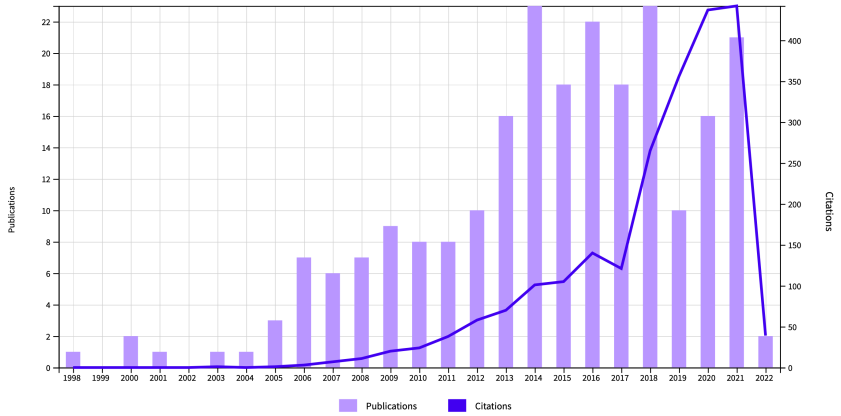
Full publications list: http://spcomnav.uab.es/?section=3&publications&id=91
Google Scholar: h-index: 35. i10-index: 120 Total Cites: 5739.
WoS h-index: 20. Scopus h-index: 26.
Among top 10 most cited researchers in Spain in wireless communications.

Among top 5 most cited researchers in Spain in signal processing.

Google Scholar Citations evolution



WoS Citations evolution



2.2.1. Books

1. J. Nurmi, E.-S. Lohan, H. Wymeersch, G. Seco-Granados, G. Nykänen, (Eds.), "Multi-Technology Positioning", Springer, 2017.
2. J. A. López-Salcedo, J. López-Vicario, G. Seco-Granados, *Radionavigation Systems* (in Catalan), Ed. Open University of Catalonia, February 2012.

2.2.2. Invited Book Chapters (partial list) / Other publications

1. C. de Lima, D. Belot, R. Berkvens, A. Bourdoux, D. Dardari, M. Guillaud, M. Isomursu, E.-S. Lohan, Y. Miao, A. N. Barreto, M. R. K. Aziz, J. Saloranta, T. Sanguanpuak, H. Sarieddeen, G. Seco-Granados, J. Suutala, T. Svensson, M. Valkama, H. Wymeersch, B. van Liempd, B. (Eds.). (2020). *6G White Paper on Localization and Sensing*. (6G Research Visions, No. 12). University of Oulu. http://urn.fi/ urn:isbn:9789526226743
2. A. Shahmansoori, G. Seco-Granados, H. Wymeersch, "Survey on 5G Positioning," chapter in *Multi-Technology Positioning*, J. Nurmi, E.-S. Lohan, H. Wymeersch, G. Seco-Granados, G. Nykänen, (Eds.), Springer, 2017.
3. J. A. Lopez-Salcedo, G. Seco-Granados, A. Bahillo-Martinez (Ed.), J. L. Lazaro-Galilea (Ed.), A. Perez-Navarro (Ed.), J. A. Rodriguez-Negro (Ed.), "Ch 3.7, GNSS de Alta Sensibilidad", chapter in *Libro Blanco sobre Espacios Inteligentes y Tecnologias de Posicionamiento y Navegación en Entornos Interior*, pp. 88-93, Dec 01 2019.
4. E. S. Lohan, H. Wymeersch, O. Nykanen, J. Nurmi, G. Seco-Granados, "MULTI-POS: Multi-Technology Positioning Professionals Training Network", chapter in *Multi-Technology Positioning, J. Nurmi, E.-S. Lohan, H. Wymeersch, G. Seco-Granados, O. Nykanen, editors*, Springer, pp. 5-11, Jan 01 2017.
5. E.S. Lohan, J. Nurmi, G. Seco-Granados, H. Wymeersch, O. Nykanen, "MULTI-POS: Lessons Learnt from Fellows and Supervisors", chapter in *Multi-Technology Positioning, J. Nurmi, E.-S. Lohan, H. Wymeersch, G. Seco-Granados, O. Nykanen, editors*, Springer, pp. 323-329, Jan 01 2017.

6. J. Pérez Bartolomé, X. Maufroid, I. Fernández Hernández, J. A. Lopez-Salcedo, G. Seco-Granados, "Overview of Galileo System", chapter in *GALILEO Positioning Technology, Series on Signals and Communication Technology*, vol. 182, pp. 9-34, Springer, Jan 2015.
7. A. L. Swindlehurst, B. D. Jeffs, G. Seco-Granados, Jian Li, "Applications of Array Signal Processing", chapter in *Elsevier Reference Signal Processing, Vol 3: Array and Statistical Signal Processing*, Chapter 20, pp. 859-953, Jan 01 2014
8. A. Bel, J. L. Vicario, G. Seco-Granados, "A Pragmatic Approach to Cooperative Positioning in Wireless Sensor Networks", chapter in Microwave and Millimeter Wave Circuits and Systems: Emerging Design, Technologies and Applications, Editors: A. Georgiadis, H. Rogier, L. Roselli, P. Arcioni, pp. 135-172, Wiley, Jan 01 2013.
9. T. Pecorella, G. Mennuti, N. Celandroni, F. Davoli, E. Ferro, A. Gotta, S. Karapantazis, A. Morell, G. Seco-Granados, P. Todorova, M. A. Vazquez-Castro, "Dynamic Bandwidth Allocation," in *Resource Management in Satellite Networks: Optimization and Cross-Layer Design*. Ed. G. Giambene, pp. 207-242, Springer, London, 2007.
10. G. Fairhust, M. A. Vazquez-Castro, G. Seco-Granados, A. Vanelli-Coralli, F. Viera, "Cross-Layer Methods and Standardisation Issues," in *Resource Management in Satellite Networks: Optimization and Cross-Layer Design*. Ed. G. Giambene, pp. 313-333, Springer, London, 2007.
11. M. A. Vazquez-Castro, J. Bito, J. Ebert, B. Heder, O. Koudelka, P. T. Mathioupoulos, S. Morosi, C. Novak, A. Quddus, G. Seco-Granados, A. Vanelli-Coralli, "Multiuser Communications," in *Digital Satellite Communications*. Ed. G. E. Corazza, Springer, 2007.
12. G. Seco-Granados, A. L. Swindlehurst, D. Astely, "Exploiting Antenna Arrays for Synchronization," in *Signal Processing Advances in Wireless and Mobile Communications, Volume 2: Trends in Single- and Multi-User Systems*. Eds: G. B. Giannakis, Y. Hua, P. Stoica, L. Tong., pp. 403-430, 2000.

2.2.3. Journal Papers

1. D. Egea-Roca, B. K. Guepie, J. A. Lopez-Salcedo, G. Seco-Granados, I. V. Nikiforov, "Two Strategies in Transient Change Detection", *IEEE Transactions on Signal Processing*, (accepted for publication), Feb 21 2022.
2. M. F. Keskin, Fan Jiang, F. Munier, G. Seco-Granados, H. Wymeersch, "Optimal Spatial Signal Design for mmWave Positioning under Imperfect Synchronization", *IEEE Transactions on Vehicular Technology*, , Feb 15 2022.
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2.2.5. Patents

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2.2.6. Conferences papers (only 2022-2017 for conciseness, 200+ in total)

1. K. Keykhosravi, G. Seco-Granados, G. C. Alexandropoulos, H. Wymeersch, "RIS-Enabled Self-Localization: Leveraging Controllable Reflections With Zero Access Points", *IEEE International Conference on Communications (ICC)*, May 16 2022.
2. Tingting Chen, Wenjin Wang, Rui Ding, G. Seco-Granados, Li You, Xiqi Gao, "Precoding Design for Joint Synchronization and Positioning in 5G Integrated Satellite Communications", *Proc. IEEE GLOBECOM*, Dec 07 2021.
3. O. Renaudin, J. A. Lopez-Salcedo, G. Seco-Granados, I. Lapin, F. Zanier, L. Ries, "TOA Error Bounds for Positioning in 5G New Radio Networks", *Proc. ION GNSS+*, Sep 23 2021.
4. D. Egea-Roca, E. Falletti, J. A. Lopez-Salcedo, G. Seco-Granados, "Comparison of Several Signal Designs based on Chirp Spread Spectrum (CSS) Modulation for a LEO PNT System", *Proc. ION GNSS+, 15 pages*, Sep 23 2021.
5. S. Locubiche, M. Sole-Gaset, M. Romero-Gaviria, N. Zaidi, A. Sfeir, G. Seco-Granados, J. A. Lopez-Salcedo, "Architecture and Performance of the Long Loop Algorithm for EGNOS V3 NLES Stations", *Proc. ION GNSS+*, Sep 22 2021.
6. Z. Abu-Shaban, K. Keykhosravi, M. Furkan Keskin, G. C. Alexandropoulos, G. Seco-Granados, H. Wymeersch, "Near-field Localization with a Reconfigurable Intelligent Surface Acting as Lens", *IEEE International Conference on Communications (ICC)*, Jun 14 2021.
7. K. Keykhosravi, M. Furkan Keskin, G. Seco-Granados, H. Wymeersch, "SISO RIS-Enabled Joint 3D Downlink Localization and Synchronization", *IEEE International Conference on Communications (ICC)*, Jun 14 2021.
8. M. A. Nazari, G. Seco-Granados, P. Johannisson, H. Wymeersch, "3D Orientation Estimation with Multiple 5G mmWave Base Stations", *IEEE International Conference on Communications (ICC)*, Jun 14 2021.
9. A. Fascista, A. Coluccia, H. Wymeersch, G. Seco-Granados, "RIS-aided Joint Localization and Synchronization with a Single-Antenna MmWave Receiver", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Jun 06 2021.
10. S. Locubiche, G. Seco-Granados, J. A. Lopez-Salcedo, "Performance Limits and Benefits of Adaptive Autoregressive Kalman Filters for GNSS Scintillation-Robust Carrier Tracking", *Proc. International Conference on Localization and GNSS (ICL-GNSS)*, Jun 01 2021.
11. A. Xhafa, J. A. del Peral-Rosado, G. Seco-Granados, J. A. Lopez-Salcedo, "Performance of NLOS Base Station Exclusion in cmWave 5G Positioning", *Proc. IEEE Vehicular Technology Conference (VTC) Spring*, Apr 25 2021.
12. Tingting Chen, Wenjin Wang, Rui Ding, G. Seco-Granados, Li You, Xiqi Gao, "Location-Based Timing Advance Estimation for 5G Integrated LEO Satellite Communications", *in Proc. IEEE GLOBECOM*, Dec 08 2020.
13. Shilpa Rao, H. Pirzadeh, G. Seco-Granados, A. L. Swindlehurst, "Spatial Sigma-Delta Massive MIMO: Improved Channel Estimation and Achievable Rates", *In Proc. Asilomar Conference on Signals, Systems, and Computers*, Nov 01 2020.
14. F. J. Mata, F. C. Grec, M. Azaola, F. Blaquez, A. Fernandez, E. Dominguez-Tijero, G. Cueto-Felgueroso, G. Seco-Granados, J. A. del Peral-Rosado, E. Staudinger, C. Gentner, M. Kasparek, C. Backert, D. Barlett, E. Serna, L. Ries, R. Prieto-Cerdeira, "Preliminary field trials and simulation results on performance of hybrid positioning based on GNSS and 5G signals", *ION GNSS+, pp. 387-401*, Sep 22 2020.
15. P. Gertzell, J. Landelius, H. Nyqvist, A. Fascista, A. Coluccia, G. Seco-Granados, Nil Garcia, H. Wymeersch, "5G multi-BS Positioning with a Single-Antenna Receiver", *in Proc. IEEE 31st Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Aug 31 2020.
16. J. Ganez-Fernandez, A. Perez-Conesa, G. Seco-Granados, J. A. Lopez-Salcedo, "Sensor de RF de Bajo Coste para el Procesado Remoto de Senales GNSS", *Proc. Seminario Anual de Automática, Electrónica Industrial e Instrumentación (SAAEI)*, Jul 08 2020.
17. D. Egea-Roca, J. A. Lopez-Salcedo, G. Seco-Granados, W. De Wilde, "Generalized ANOVA Test for GNSS Spoofing Detection with a Dual-Polarized Antenna", *Proc. European Signal Processing Conference (EUSIPCO)*, Jun 24 2020.

18. Yibo Wu, Bile Peng, H. Wymeersch, G. Seco-Granados, A. Kakkavas, M. H. Castaneda Garcia, R. Stirling-Gallacher, "Cooperative Localization with Angular Measurements and Posterior Linearization", *IEEE International Conference on Communications (ICC) - Workshop on Advances in Network Localization and Navigation (ANLN)*, Jun 07 2020.
19. H. Pirzadeh, G. Seco-Granados, A. L. Swindlehurst and J. A. Nossek, "On the Effect of Mutual Coupling in One-Bit Spcatial Sigma-Delta Massive MIMO Systems," *2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, USA, 2020, pp. 1-5, doi: 10.1109/SPAWC48557.2020.9154251.
20. Yibo Wu, Bile Peng, H. Wymeersch, G. Seco-Granados, A. Kakkavas, M. H. Castañeda Garcia, R. A. Stirling-Gallacher, "Cooperative Localization with Angular Measurements and Posterior Linearization," *2020 IEEE International Conference on Communications Workshops (ICC Workshops)*, Dublin, Ireland, 2020, pp. 1-6. doi: 10.1109/ICCWorkshops49005.2020.9145275
21. N. Chang, W. Wang, X. Hong, J. A. Lopez-Salcedo and G. Seco-Granados, "Sparse Spatial and Temporal Estimation for Multipath Mitigation in GNSS," *2020 IEEE/ION Position, Location and Navigation Symposium (PLANS)*, Portland, OR, USA, 2020, pp. 1267-1272. doi: 10.1109/PLANS46316.2020.9109852
22. Z. Abu-Shaban, G. Seco-Granados, C. R. Benson and H. Wymeersch, "Performance Analysis for Autonomous Vehicle 5g-Assisted Positioning in GNSS-Challenged Environments," *2020 IEEE/ION Position, Location and Navigation Symposium (PLANS)*, Portland, OR, USA, 2020, pp. 996-1003. doi: 10.1109/PLANS46316.2020.9109885
23. H. Wymeersch and G. Seco-Granados, "Adaptive Detection Probability for mmWave 5G SLAM," *2020 2nd 6G Wireless Summit (6G SUMMIT)*, Levi, Finland, 2020, pp. 1-5, doi: 10.1109/6GSUMMIT49458.2020.9083898
24. J. A. del Peral-Rosado *et al*., "Exploitation of 3D City Maps for Hybrid 5G RTT and GNSS Positioning Simulations," *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Barcelona, Spain, 2020, pp. 9205-9209. doi: 10.1109/ICASSP40776.2020.9053157.
25. A. Fascista, A. Coluccia, H. Wymeersch and G. Seco-Granados, "Low-Complexity Accurate Mmwave Positioning for Single-Antenna Users Based on Angle-of-Departure and Adaptive Beamforming," *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Barcelona, Spain, 2020, pp. 4866-4870. doi: 10.1109/ICASSP40776.2020.9053493.
26. H. Pirzadeh, G. Seco-Granados and A. L. Swindlehurst, "Mitigation of Jamming Attack in Massive MIMO With One-Bit FBB Sigma-Delta ADCs," *2019 53rd Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, USA, 2019, pp. 1700-1704. doi: 10.1109/IEEECONF44664.2019.9048666
27. A. Kakkavas, G. Seco-Granados, H. Wymeersch, M. Castaneda, R. A. Stirling, J. A. Nossek, "5G Downlink Multi-Beam Signal Design for LOS Positioning", *in Proc. IEEE GLOBECOM*, Dec 2019.
28. G. Cueto-Felgueroso, F. Grec, J. A. del Peral-Rosado, J. A. Lopez-Salcedo, G. Seco-Granados, C. Gentner, E. Staudinger, D. Bartlett, E. Serna, M. Azaola, A. Fernandez, F. Blazquez, F. Mata, R. Prieto-Cerdeira, L. Ries, "Hybridizing GNSS with Sensors and Terrestrial Technologies for Positioning in 5G", *Proc. ION GNSS+*, Sep 2019.
29. J. A. del Peral-Rosado, O. Renaudin, C. Gentner, R. Raulefs, E. Dominguez, A. Fernandez, F. Blazquez, G. Cueto, A. Chassaigne, D. Bartlett, F. Grec, L. Ries, R. Prieto, J. A. Lopez-Salcedo, G. Seco-Granados, "Physical-Layer Abstraction for Hybrid GNSS and 5G Positioning Evaluations", *Proc. IEEE VTC Fall*, Sep 2019.
30. H. Wymeersch, N. Garcia, H. Kim, G. Seco-Granados, S. Kim, F. Wen, M. Frohle, "5G mmWave Downlink Vehicular Positioning", *Proc. IEEE GLOBECOM*, Dec 2018.
31. Z. Abu-Shaban, H. Wymeersch, T. Abhayapala, G. Seco-Granados, "Distributed Two-Way Localization Bounds for 5G mmWave Systems", *Proc. IEEE GLOBECOM*, Dec 2018.
32. V. Lucas-Sabola, J. A. Lopez-Salcedo, G. Seco-Granados, J. A. Garcia-Molina, "Performance Analysis of Low-Power GNSS Positioning in IoT", in *Proc. 9th ESA Workshop on Satellite Navigation User Equipment Technologies (NAVITEC)*, Dec 2018.
33. P. Crosta, J. Clua, M. Sole, R. Romero, L. Tavira, G. Seco-Granados, A. Tripiana, "GNSS Performance Characterization Framework", in *Proc. 9th ESA Workshop on Satellite Navigation User Equipment Technologies (NAVITEC)*, Dec 2018.
34. S. Cancela, J. Navarro, D. Calle, E. Gohler, A. Dalla Chiara, G. Da Broi, I. Fernández-Hernández, G. Seco-Granados, J. Simon, "Testing Receiver Resilience Against Signal Replay Attacks", in *Proc. International Technical Symposium on Navigation and Timing (ITSNT)*, Nov 2018.
35. G. Destino, J. Saloranta, G. Seco-Granados, H. Wymeersch, "Performance Analysis of Hybrid 5G-GNSS localization",in *Proc, Asilomar Conf. Signals, Systems and Computers*, 2018.

36. Hyowom Kim, H. Wymeersch, N. García, G. Seco-Granados, Sunwoo Kim, “5G mmWave Downlink Vehicular Positioning”, *Asilomar Conf. Signals, Systems and Computers*, 2018.
37. W. de Wilde, B. Bougard, J.-M. Sleewaegen, A. Popugaev, M. Landmann, C. Schirmer, D. Egea-Roca, J. A. Lopez-Salcedo, G. Seco-Granados, "Authentication by Polarization: A Powerful Anti-Spoofing Method", *Proc. ION GNSS+*, Sep 2018.
38. P. Crosta, J. Clua, G. Seco-Granados et al. “GNSS Performance Characterization Framework”, *Proc. ION GNSS+*, Sep 2018.
39. D. Egea-Roca, A. Tripiana-Caballero, J. A. Lopez-Salcedo, G. Seco-Granados, W. de Wilde, B. Bougard, J.-M. Sleewaegen, A. Popugaev, "GNSS Measurement Exclusion and Weighting with Dual Polarized Antenna: The FANTASTIC project", *Proc. International Conference on Localization and GNSS (ICL-GNSS), Best Paper Award*, Jun 2018.
40. D. Gomez-Casco, J. A. Lopez-Salcedo, G. Seco-Granados, "Statistical Characterization of the Optimal Detector for a Signal with Time-Varying Phase Based on the Edgeworth Series", *Proc. IEEE Statistical Signal Processing Workshop (SSP)*, Jun 2018.
41. M. Pini, B. Bougard, W. de Wilde, G. Seco-Granados, D. Egea-Roca, D. Calle, A. Popugaev, "GNSS Core Technologies Enabling Application Dependability: The FANTASTIC Project", *Proc. European Navigation Conference (ENC)*, May 2018.
42. Z. Abu-Shaban, Xiangyun Zhou, T. D. Abhayapala, G. Seco-Granados, H. Wymeersch, "Performance of Location and Orientation Estimation in 5G mmWave Systems: Uplink vs Downlink", *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr 2018.
43. G. Destino, J. Saloranta, H. Wymeersch, G. Seco-Granados, "Impact of Imperfect Beam Alignment on the Rate-Positioning Trade-Off", *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Apr 2018.
44. J. A. del Peral-Rosado, M. A. Barreto-Arboleda, F. Zanier, M. Crisci, G. Seco-Granados, J. A. Lopez-Salcedo, "Performance Limits of V2I Ranging Localization with LTE Networks", in *Proc. IEEE Workshop on Positioning, Navigation and Communications (WPNC)*, Oct 2017.
45. D. Gomez-Casco, J. A. Lopez-Salcedo, G. Seco-Granados, "Optimal Fractional Non-Coherent Detector for High-Sensitivity GNSS Receivers Robust against Residual Frequency Offset and Unknown Bits", in *Proc. IEEE Workshop on Positioning, Navigation and Communications (WPNC)*, Oct 2017.
46. L. Romero-Holguin, V. Lucas-Sabola, J. A. del Peral-Rosado, G. Seco-Granados, J. A. Lopez-Salcedo, J. A. Garcia-Molina, "Prototype of IoT GNSS Sensor for Cloud GNSS Signal Processing", in *Proc. 6th International Colloquium on Scientific and Fundamental Aspects of GNSS / Galileo*, Oct 2017.
47. S. Locubiche, D. Gomez-Casco, A. Gusi, J. A. Lopez-Salcedo, G. Seco-Granados, J. A. Garcia-Molina, "Positioning Performance Analysis of High-Order BOC Signals in Advanced Multi-constellation High-Sensitivity GNSS Receivers", in *Proc. 6th International Colloquium on Scientific and Fundamental Aspects of GNSS / Galileo, Oct 201*.
48. J. A. del Peral-Rosado, M. Bavaro, J. A. Lopez-Salcedo, P. Chawdhry, J. Fortuny-Guasch, G. Seco-Granados, "NB-IoT Ranging Performance in LTE Femtocell Networks", in *Proc. Workshop on Dependable Wireless Communications and Localization for the IoT*, Sep 2017.
49. D. Egea-Roca, G. Seco-Granados, J. A. Lopez-Salcedo, "Sequential Change Detection for Next-Generation RAIM Algorithms", in *Proc. ION GNSS+*, Sep 2017.
50. V. Lucas-Sabola, G. Seco-Granados, J. A. Lopez-Salcedo, J. A. Garcia-Molina, M. Crisci, "Efficiency Analysis of Cloud GNSS Signal Processing for IoT Applications", in *Proc. ION GNSS+*, Sep 2017.
51. J. A. del Peral-Rosado, R. Estatuet, J. A. Lopez-Salcedo, G. Seco-Granados, Z. Chaloupka, L. Ries, J. A. Garcia Molina, "Evaluation of Hybrid Positioning Scenarios for Autonomous Vehicle Applications", in *Proc. ION GNSS+*, Sep 2017.
52. P. Fernandes, P. Boto, S. Lohan, G. Seco-Granados, J. A. Garcia-Molina, "Subcarrier Ambiguity Resolution Techniques for HOBOC Signals under Harsh Realistic Scenarios", in *Proc. ION GNSS+*, Sep 2017.
53. I. Fernández-Hernández, D. Calle, S. Cancela, A. Fernandez, R. Martinez, G. Seco-Granados, P. Walker, "Fountain Codes for GNSS", in *Proc. ION GNSS+*, Sep 2017.
54. C. Sarto, O. Pozzobon, S. Fantinato, S. Montagner, I. Fernández-Hernández, J. Simon, D. Calle, S. Cancela, P. Walker, D. Burkey, G. Seco-Granados, E. Gohler, "Implementation and Testing of OSNMA for Galileo", in *Proc. ION GNSS+*, Sep 2017.
55. S. Cancela, D. Calle, G. Arroyo, A. Dalla Chiara, G. Da Broi, O. Pozzobon, C. Sarto, J. Winkle, I. Krol, P. Webster, I. Fernández-Hernández, J. Simón, G. Seco-Granados, "Designing and Evaluating Next Generation of Resilience Receivers", in *Proc. ION GNSS+*, Sep 2017.
56. J. Miguez, J.V. Perello-Gisbert, J.A. Garcia-Molina, P. Zoccarato, P. Crosta, L. Ries, R. Orus-Perez, G. Seco-Granados, M. Crisci, "Multi-GNSS Dynamic High Precision Positioning in urban environment", in *Proc. ION GNSS+,* 9 pages, Sep 2017.

57. D. Egea-Roca, G. Seco-Granados, J. A. Lopez-Salcedo, Sunwoo Kim, "Space-Time CUSUM for Distributed Quickest Detection Using Randomly Spaced Sensors Along a Path", in *Proc. European Signal Processing Conference (EUSIPCO)*, Aug 28 2017.
58. J. A. del Peral-Rosado, M. A. Barreto-Arboleda, F. Zanier, M. Crisci, G. Seco-Granados, J. A. Lopez-Salcedo, "Pilot Placement for Power-Efficient Uplink Positioning in 5G Vehicular Networks", *Proc. IEEE International Workshop on Signal Processing Advances for Wireless Communications (SPAWC)*, Jul 2017.
59. J. A. del Peral-Rosado, J. A. Lopez-Salcedo, G. Seco-Granados, "Impact of Frequency-Hopping NB-IoT Positioning in 4G and Future 5G Networks", *Proc. IEEE ICC 2017 Workshop on Advances in Network Localization and Navigation (ANLN),* May 25 2017,

2.3. Software

- Cloud-based GNSS receiver http://cloudgnssrx.com. It is a software platform running in Amazon Web Services capable of processing fragments of samples of GNSS signals, and it returns the position where the fragment was captured. It provides a web-based human-to-machine interface and a machine-to-machine interface. It is optimized to process short signal records, thus making it possible to obtain the position of IoT sensors with a low power consumption. The software is the basis of a spin-off company being constituted.

2.3. Founding of start-up companies

- The previous software has been the starting point of start-up company www.loctio.com, for which G. Seco-Granados is a co-founder. The company provides low-energy positioning solutions for IoT.

2.4. Invited courses and talks (partial list, only since 2016)

1. "Evolution of the Standards and Simulation Models towards 5G Positioning", presentation at COMET-CNES Workshop on 5G Signals for Positioning, February 26, 2021.
2. "Key Technology Enablers for 5G+/6G", presentation at the European Space Agency workshop on The Role of GNSS in 5G and Beyond, March 12, 2021.
3. "The Use of 5G mmWave Massive-MIMO Systems for Positioning", keynote at 24th International ITG Workshop on Smart Antennas (WSA), February 18, 2020, Hamburg, Germany.
4. "5G Localization: Unlocking New Dimensions in Radio-based Positioning", together with H. Wymeersch, Tutorial at IEEE ICASSP 2019 conference.
5. "5G NR Localization", Keynote at International Conference on Localization and GNSS (ICL-GNSS), June 6, 2019, Nuremberg, Germany.
6. "5G Localization: Unlocking New Dimensions in Radio-based Positioning", Keynote at International Navigation Conference – Royal Institute of Navigation, November 15, 2018, Bristol, UK.
7. "5G Localization: Unlocking New Dimensions in Radio-based Positioning", together with H. Wymeersch, Tutorial at IEEE PIMRC 2018 conference.
8. "Principles of Localization and Positioning in 5G", Summer School on 5G V2X Communications, Center of Telecommunications Research, King's College of London, June 11, 2018. Host: Prof. Toktam Mahmoodi.
9. "Cloud GNSS", INSURE-DELTA summer school on Cybersecurity in Localization, Aalto University, May 24, 2018. Host: Prof. Heidi Kuusniemi.
10. "Cellular positioning, 5G localization and vulnerabilities", INSURE-DELTA summer school on Cybersecurity in Localization, Aalto University, May 24, 2018. Host: Prof. Heidi Kuusniemi.
11. "Channel Estimation, Achievable Rate and Efficiency in One-Bit Massive MIMO Systems", École Nationale Supérieure de l'Electronique et de ses Applications (ENSEA), Cergy, France, May 26, 2017. Host: Prof. Inbar Fijalkow.
12. "GNSS Receivers and Signal Processing", e-KnoT Network - GNSS PhD Training, Varsaw (Poland), October 11, 2016.
13. "On the Use of Quickest Detection Theory for GNSS Signal Integrity Monitoring in the Presence of Local Effects", Stanford University, November 20, 2015. Host: Prof. Per Enge.
14. "On the Use of Quickest Detection Theory for GNSS Signal Integrity Monitoring in the Presence of Local Effects", University of California, Los Angeles, November 19, 2015. Host: Prof. Danijela Cabric.
15. Three-day course at Samara State Aerospace University, January 27-29, 2015. Host: Prof. Ilya Kudryavtsev.
    - GALILEO Positioning System: Technology, Status and Service
    - GNSS Receiver Basics and Technology Challenges: High-Sensitivity and Multi-Antenna Receivers

- Application of change detection theory to signal-level integrity in GNSS

3. Supervision and Teaching

3.1. Graduated PhD Students

1. M. Mañosas Caballú, “Contributions to Array Processing: Beamforming, Synchronization and Localization”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, February 2022.
2. S. Locubiche Serra, "Robust Carrier Tracking Techniques for GNSS Receivers affected by Ionospheric Scintillation", Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, July 18, 2019.
3. D. Gómez Casco, “Non-Coherent Acquisition Techniques for High-Sensitivity GNSS Receiver”, Dept. Of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, November 6, 2018.
4. D. Egea Roca, “Change Detection Techniques for GNSS Signal-Level Integrity”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, September 8, 2017.
5. A. Shahmansoori, “Localization with OFDM Signals in 5G Systems”, Dept. Of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, January 30, 2017.
6. J. A. Del Peral Rosado, “Evaluation of the LTE Positioning Capabilities in Realistic Navigation Channels”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, May 13, 2014.
7. Sadig Ali, “Distributed Detection in WSN under Uncertain Conditions”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, March 31, 2014.
8. J. E. Barceló Lladó, “Communications in Wireless Sensor Networks: Compression, Energy Efficiency and Secrecy”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, October 2012.
9. A. Bel i Pereira, “A Pragmatic Approach to Localization and Tracking in Wireless Sensor Networks”, Dept. of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona, October 2012.
10. I. Groh, “Efficient Time-Variant Synchronization in Spread-Spectrum Navigation Receivers”. Dept. of Material Sciences, Optics and Electronic Technology, Universidad Miguel Hernández de Elche, co-supervised with Prof. Jesús Selva (Universidad de Alicante), September 2011.
11. A. Morell, “A Convex Decomposition Perspective on Dynamic Bandwidth Allocation and Applications”, Universitat Politècnica de Catalunya, September 2008.

3.2. Supervision of post-docs and visiting faculty (only recent ones)

- Jungchan Sun, PhD student from China University of Mining and Technology, Xuzhou, Jiangsu, China, December 2021 – December 2022. Stay funded by the China Science Council (CSC).
- Ning Chan, PhD student from Xi'an Jiaotong University, China, April 2019 – March 2020. Stay funded by the China Science Council (CSC).
- Alessandro Pin, PhD student from University of Udine, Italy, April - June 2019. Stay funded by u-blox.
- Alessio Fascista, PhD student from University of Salento, Italy, April - June 2018.
- Dr. Sanguk Lee, ETRI Korea, September 2017 – August 2018.
- Zohair Abu-Shaban, PhD student from Australian National University, January - February 2017.
- Prof. Duk-Sun Shim, visitor from Chung-Ang University (Republic of Korea), June 2014 - June 2015.
- Simona-Elena Lohan, Adjunct professor in the Department of Communications Engineering, Tampere University of Technology. Stay funded by Academy of Finland Fellowship, 05/2015 - 07/2015, 07/2014 - 07/2015, 07/2016 - 07/2016, 07/2017 - 07/2017.

3.3. Supervised MSc Theses and final degree projects

- 20 MSc theses and 40 BSc final degree projects.

5. Service activities

5.1. Editorial positions

1. Associate editor and member of the editorial board of the *Hindawi Journal of Navigation and Observation* (11/2006 – 12/2017)
2. Guest editor (together with A. Dogandzic, J. Riba, A. L. Swindlehurst) of the Special Issue (vol. 22, issue 44, 2005) of the *IEEE Signal Processing Magazine* on Signal Processing for Positioning and Navigation with Applications to Communications.

5.2. IEEE Positions

1. 01/2019 – present: President of the Spanish Chapter of the IEEE Aerospace and Electronic Systems Society.
2. 01/2018 – present: Member of the Sensor Array and Multichannel Signal Processing Technical Committee, IEEE Signal Processing Society.

5.3. Conference Organization

1. Co-Chair of the International Conference on Localization and GNSS (ICL-GNSS), 2016.
2. Co-Chair of the 8th Advanced Satellite Multimedia Systems Conference and the 14th Signal Processing for Space Communications Workshop (ASMS/SPSC) 2016.
3. Chair of *2nd ESA Workshop on Satellite Navigation User Equipment Technologies, NAVITEC'2004*, The Netherlands.

5.3. Special Session Organization

1. Co-organizer of the Invited Session "Reliable Ubiquitous Navigation in Smart Cities" at IEEE/ION Position, Location and Navigation Symposium (PLANS), 2020.
2. Co-organizer of the International Workshop "Reliable Ubiquitous Navigation in Smart Cities" in conjunction with IEEE Vehicular Technology Conference (VTC) Fall 2019.
3. Co-organizer of the Special Session "Signal processing for secure and reliable localization using terrestrial networks" at the European Signal Processing Conference (EUSIPCO) 2019.
4. Co-organizer of the Special Session " Signal Processing for GNSS and/or Localization with Terrestrial Networks " at Asilomar Conference on Signals, Systems, and Computers 2018.
5. Co-organizer of the Special Session "Localization in Current and Emerging Networks" at IEEE Wireless Communications and Networking Conference (WCNC) 2018.
6. Co-organizer of the Special Session "Advances in Multi-Sensor Adaptive Processing for GNSS" at IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) 2017.
7. Member of the Steering Committee of the International Conference on Localization and GNSS, 2011-present.

5.5. Reviewer for IEEE journals and conferences

1. Usual reviewer of papers for IEEE Transactions of Signal Processing, IEEE Transactions on Wireless Communications, IEEE Transactions on Aerospace and Electronic Systems.
2. Sporadic reviewer of papers for IEEE Transactions on Vehicular Technology, IEEE Journal on Selected Areas on Signal Processing, IEEE Communication Letters.
3. Member of the TPC/reviewer, every year, for the following IEEE conferences: ICASSP, ICC, CAMPSAP, VTC, SAM, WCNC, WPNC, GLOBECOM.

5.6. Evaluation of proposals

1. Evaluator of proposals for the Swiss National Science Foundation

2. Evaluator of proposals for the European Commission in the calls: H2020-SPACE PROTEC-1 2014 (June 2014), FP7-SPACE-2013-1 (Dec. 2012 – Feb. 2013), FP7-SME-2013 (Dec. 2012 – Feb. 2013), FP7-GALILEO-2011-ENTR-1 (Jan. 2011), FP7-GALILEO-2007-GSA-1 (2008).
3. Rapporteur for the European Commission in the call H2020-SPACE PROTEC-1 2014 (June 2014), FP7-SPACE-2013-1 (Dec. 2012 – Feb. 2013).
4. Evaluator for "Área de Tecnología Informática de las Comunicaciones y Electrónica del Fondo para la Investigación Científica y Tecnólogica (FONCYT)" of Argentina.
5. Evaluator for the Natural Sciences and Engineering Research Council of Canada.
6. Evaluator for the Romanian National Council for Research and Development.
7. Evaluator of research proposals for the Academy of Finland
8. Evaluator of research proposals for the Agencia Andaluza de Evaluación de la Calidad y Acreditación Universitaria.
9. Evaluator of research proposals for Research Promotion Foundation (RPF) of Cyprus.
10. Evaluator of proposals for the NRSCC (National Remote Sensing Center of China) call on GNSS Mass Market Receivers.

5.7. Doctoral Committees

1. Han Dun, "High Accuracy Terrestrial Positioning Based on Time Delay and Carrier Phase Using Wideband Radio Signals", Delft University of Technology (The Netherlands), October 8, 2021; reviewer and committer member.
2. Anne-Marie Tobie, "GNSS/5G Hybridization for Urban Navigation", Institut National Polytechnique of Toulouse (France), February 25, 2021; reviewer and committer member.
3. Remun Koirala, "Joint Localization and Communication in 5G Millimeter Wave Networks", CEA-LETI and Université de Rennes 1 (France), Università di Bologna (Italy), January 2020; reviewer and committee member.
4. Alessandro Pin, "Time of Arrival and Angle of Arrival Estimations of LTE Signals for Positioning Applications", Università Deglo Studi di Udine, Italy, December 2019; reviewer.
5. Alex Minetto, "Cooperative positioning for connected GNSS receivers", Politecnico di Torino, Italy, February 2020; reviewer and committee member.
6. Achilleas Tsitsimelis, "Advanced Signal Processing Techniques for Robust State Estimation Applications in Smart Grids", Universitat Politècnica de Catalunya, Spain, December 2019; reviewer.
7. Carlos Alcaide Guillén, "Design and Development of a Technological Demonstrator for the Study of High-Dynamics GNSS Receivers", Universitat Politècnica de Valencia, Spain, July 2019; reviewer.
8. Wen Kai, "RSS Indoor Localization and Tracking with INS Assistance", Nanyang Technology University, Taiwan, Feb 2019.
9. Enik Shytermeja, "Design and Performance of a GNSS Single-Frequency Multi-constellation Vector Tracking Architecture for Urban Environments", Institut National Polytechnique de Toulouse (France), December 14, 2017; committee member.
10. Alexis López Riera, "Aplicaciones Avanzadas del Principio Superregenerativo a Comunicaciones por Radiofrecuencia", Universitat Politècnica de Catalunya, 2017; committee member.
11. René Játiva Espinoza, "Dispersive Source Models in Wireless Communication's Subscriber Location", Universitat Politècnica de Catalunya, 2017; committee member.
12. Juan Manuel Castro-Arvizu, "Robust Indoor Positioning in WLAN Networks", Universitat Politècnica de Catalunya, 2017; committee member.
13. Marco Bartolucci, "Cooperative Interference Detection, Localization, and Mitigation in GNSS", University di Bologna, February 2017, reviewer.
14. Jean-Baptiste Pagot, "Modelling and Monitoring of New GNSS Signals Distortion in the Context of Civil Aviation", Institut National Polytechnique de Toulouse (France), December 20, 2016; committee member.
15. Javier Rubio López, "Resource Management Techniques for Sustainable Networks with Energy Harvesting Nodes", Universitat Politècnica de Catalunya, June 22, 2016; committee member.
16. Alberto Antón Sánchez, "Statistical Techniques and Algorithms Applied in Satellite Communications Antenna Arrays for Direction of Arrival Estimation and Calibration", Universidad Politécnica de Madrid, May 23, 2016; committee member.
17. José María Vallet García, "Localization in Wireless Sensor Networks Using a Mobile Robot", Aalto University, January, 2016; reviewer.
18. Alberto Torre Fernández, "Large Aperture Antenna Arrays with Subband Delay Compensantion for Reception of Wideband Satellite Signals", Universidad Politécnica de Madrid, December 12, 2014; committee member.

19. Hamza M. Benzerrouk, “Modern Approaches in Nonlinear Filtering theory Applied to Original Problems of Aerospace Integrated Navigation Systems with Non-Gaussian Noises”, Saint Petersburg State University, 3 July 2014; committee member.
20. Gerard Zamora González, “Radio Frequency Identification (RFID) Tags and Reader Antennas Based on Conjugate Matching and Metamaterial Concepts”, 2 October 2013, substitute committee member.
21. Frank Schubert, “Scattering Model for Vegetation Canopies and Simulation of Satellite Navigation Channels”, Aalborg University, 14 September 2012; committee member.
22. Javier Arribas Lázaro, “GNSS Array-based Acquisition: Theory and Implementation, Universitat Politècnica de Catalunya, 28 June 2012; reviewer of PhD proposal, committee member.
23. Miguel Alejandro Salas Natera, “Contribution to the Uncertainty Analysis and Calibration of Active Antenna Arrays”, Universidad Politécnica de Madrid, December 2011; committee member.
24. Mohammad Zahidul Hasan Bhuiyan, “Analysis of Multipath Mitigation Techniques for Satellite-based Positioning Applications”, Department of Communications Engineering, Tampere University of Technology, September 2011; Oponent.
25. Felix Antreich, “Array Processing and Signal Design for Timing Synchronization”, Institute for Circuit Theory and Signal Processing, Technical University of Munich, July 2011.
26. Nuria Blanco Delgado, “Signal Processing Techniques in Modern Multi-Constellation GNSS Receivers”, Instituto Superior Técnico, Univerdade Técnica de Lisboa, June 2011; panel member.
27. Faisal Khan, “Locata Positioning System Performance Evaluation and Improvement in the Presence of RF Interfernce”, School of Surveying and Spatial Information Systems, The University of New South Wales, Australia, March 2011; panel member.
28. Staffan Backén, “On Dynamic Array Processing for GNSS Software Receivers”, Dept. of Computer Science, Electrical and Space Engineering, Luleå University of Technology, April 2011; Oponent.
29. David Gregoratti, “Randomized Space-Time Block Coding for the Multiple-Relay Channel,” Universitat Politècnica de Catalunya, June 2010; panel member.
30. José Joaquín Escudero Garzás, “Optimización de Energía y Eficiencia de Transmisión con Análisis de imparcialidad en Comunicaciones Inalámbricas Adaptativas,” Universidad Carlos III de Madrid, February 2010; panel member.
31. Pau Closas Gómez, “Bayesian Signal Processing Techniques for GNSS Receivers,” Universitat Politècnica de Catalunya, June 2009; reviewer of PhD proposal, PhD reviewer and panel member.
32. Pere Ramos-Bosch, “Improvements in Autonomous GPS Navigation of Low Earth Orbit Satellites,” Universitat Politècnica de Catalunya, October 2008; panel member.
33. Francisco Rubio, “Generalized Consistent Estimation in Arbitrarily High Dimensional Signal Processing,” Universitat Politècnica de Catalunya, April 2008; panel member.
34. Ali Nassar, “Time-Varying Frequency-Selective MIMO Channel Estimation,” Universitat Politècnica de Catalunya, February 2008; reviewer of PhD proposal, PhD reviewer and panel member.
35. Sandro Scalise, “Channel Modeling and Receiver Design Contributions for Emerging Satellite Communication Systems,” University of Vigo, July 2007; panel member.
36. Andreu Urruela, “Signal Processing Techniques for Wireless Localization,” Universitat Politècnica de Catalunya, July 2006; panel member.
37. Carles Fernández Prades, “Advanced Signal Processing Techniques for Global Navigation Satellite Systems Receivers,” Universitat Politècnica de Catalunya, April 27th, 2006; reviewer of the PhD proposal, PhD reviewer and panel member.
38. Dawit Beleke, “Técnicas de Acceso Múltiple por Contienda Basadas en Espectro Ensanchado para Sistemas Multimedia por Satélite,” Universidad Carlos III de Madrid, July 26th, 2005; panel member.
39. Jesús Selva Vera, “Efficient Multipath Mitigation in Navigation Receivers,” Universitat Politècnica de Catalunya, February 9th, 2004; reviewer of the PhD proposal, panel member.