

Miquel Sànchez Marrè

CV Summary

Associate Professor in the Computer Science (CS) Dept. of UPC since 1997 (tenure). Since March 2019, he is the Head of the Postgraduate Studies of the Computer Science Dept. He is member of the Intelligent Data Science Research Centre (IDEAI-UPC), and member of the Knowledge Engineering and Machine Learning Group (KEMLG). He was the head of the Artificial Intelligence (AI) section of CS Dept. (1997-2000) and head of the KEMLG group (2006-2011). He was the Academic Coordinator of the PhD program on AI (UPC) since February 2013 until May 2016, and of the Interuniversity Master program of AI (UPC-URB-UB) since February 2010 to August 2011. In 2003, he co-founded the spin-off company Sanejament Intel·ligent S.L. (SISLtech), which received the *Energy Excellence Award 2013* in November 10th, 2013, and the *Bioenergy Silver Award 2012*, in May 23rd, 2012. He is a pioneer member of ACIA (Catalan Association of Artificial Intelligence) and in 1994-1998 was member of its board of directors. He is a Fellow of the International Environmental Modelling and Software Society (iEMSs) since 2005. He co-organized the first Environment and AI Workshop in Europe: Binding Environmental Sciences and Artificial Intelligence (BESAI 98) at ECAI conference in 1998. He received an Accesit of the Oms i De Prat 1991 Prize, for his Master's Thesis. He is a pioneer member of iEMSs and a board member of iEMSs, too. He is also a pioneer member of the MIDAS (Spanish Network on Data Mining and Learning) and ÀTICA (Spanish network on Advance and Transference of Applied Computational Intelligence), and he is the main coordinator of the ÀTICA network. He is a member of the Editorial Board of *Int. Journal of Applied Intelligence*, *Modelling* journal and of the *Environmental Modelling & Software* journal. He has been researching in 25 projects granted by the EU, the Catalanian government and the Spanish council. He has authored 220 peer-reviewed publications, including 46 SCR indexed journal articles, and is author/editor of 10 books. He has organised some international events in the AI field (BESAI-ECAI, AAI, iEMSs). His main research topics are Case-Based Reasoning, Intelligent Decision Support Systems, Recommender Systems, Machine Learning, Data Science, Knowledge Engineering, Integrated AI architectures, and AI applied to Environmental, Industrial and Health systems.

General indicators of quality of scientific production

Sexenniums: 5 Last obtained sexennium: 5/5/2023 (sexennium 2017-2022)

Ph.D.Thesis: 7

Ph.D. Thesis (in progress): 3

M.Sc. Thesis: 16

Total Cites: 3310 Average Cites/year (last 5 years): 182

h-index: 30

i10-index: 71

Journal Pub. SCR (Q1): 18

Journal Pub. SCR: 46

Int. Conference Reviewed Pub.: 108

He is mentioned as one contributor to the "Timeline of Artificial Intelligence" in the Wikipedia, for his pioneering research efforts in Artificial Intelligence and Environmental Sciences (https://en.wikipedia.org/wiki/Timeline_of_artificial_intelligence#1990s).

RELEVANT MERITS

1) Publications

- M. Sànchez-Marrè (2022). *Intelligent Decision Support Systems*. Springer International Publishing, March 2022. ISBN: 978-3-030-87789-7. 806 pages.
- À. Hernández-Carnerero, M. Sànchez-Marrè, I. Mora-Jiménez, C. Soguero-Ruiz, S. Martínez-Agüero and J. Álvarez-Rodríguez (2023). *Dimensionality Reduction and*

Ensemble of LSTMs for Antimicrobial Resistance Prediction. *Artificial Intelligence in Medicine* 138, 102508. Rank (2021): 32/146 (Q1, CompSci/AI), IF: 7.011.

- A. Gatzoura, J. Vinagre, A.M. Jorge & M. Sánchez-Marrè (2021). **A Hybrid Recommendation Algorithm for Improving Automatic Playlist Continuation.** *IEEE Trans. on Knowledge and Data Engineering*. Rank: 22/136 (Q1, CompSci/AI), IF: 4.935
- J. Pascual-Pañach, M.A. Cugueró-Escofet and M. Sánchez-Marrè (2021). **Interoperating Data-driven and Model-driven Techniques for the Automated Development of Intelligent Environmental Decision Support Systems.** *Environmental Modelling and Software* 140, 105021. Rank (2019): 13/106 (Q1, CompSci/InterdisApplic), IF: 4.552
- N. Nakhjiri, M. Salamó & M. Sánchez-Marrè (2020). **Reputation-Based Maintenance in Case-Based Reasoning.** *Knowledge-Based Systems* Vol. 193. Rank (2019): 15/136 (Q1, CompSci/AI), IF (2019): 5.921
- A. Gatzoura, M. Sánchez-Marrè & K. Gibert (2019). **A Hybrid Recommender System to Improve Resource Exchange in Industrial Symbiotic Networks.** *Energies* 12(18):3546. Rank: 63/112 (Q3, Energy & Fuels), IF: 2.702
- G. Mannina, T. Ferrerira Rebouças, A. Cosenza, M. Sánchez-Marrè & K. Gibert (2019). **Decision Support Systems (DSS) for Wastewater Treatment Plants – A Review of the State of the Art.** *Bioresource Technology*, Vol. 290, article 121814. Rank: 13/112 (Q1, Energy & Fuels), 12/156 (Q1, Biotechnology & Applied Microbiology), IF: 7.539
- K. Gibert, J. Izquierdo, M. Sánchez-Marrè, Serena H. Hamilton, I. Rodríguez-Roda & G. Holmes (2018). **Which Method to Use? An Assessment of Data Mining Methods in Environmental Data Science.** *Environmental Modelling and Software* 110:3-27. Rank: 13/106 (Q1, CompSci/InterdisApplic), IF: 4.552
- F. Orduña Cabrera & M. Sánchez-Marrè (2018). **Environmental Data Stream Mining through a Case-Based Stochastic Learning Approach.** *Environmental Modelling and Software* 106:22-34, Rank: 13/106 (Q1, CompSci/InterdisApplic), IF: 4.552.
- B. Sevilla-Villanueva, K. Gibert y M. Sánchez-Marrè (2017). **A Methodology to Discover and Understand Complex Patterns: Interpreted Integrative Multiview Clustering (I2MC).** *Pattern Recognition Letters* (93):85-94 ISSN: 0167-8655. DOI: 10.1016/j.patrec.2017.02.008. Rank: 56/132 (Q2, CompSci/AI), Impact Factor: 1.952
- B. Sevilla-Villanueva, K. Gibert, M. Sánchez-Marrè, Montserrat Fitó y Maria-Isabel Covas (2017). **Evaluation of Adherence to Nutritional Intervention through Trajectory Analysis.** *IEEE Journal of Biomedical and Health Informatics* 21(3):628-634. ISSN: 2168-2194/2168-2208. DOI: 10.1109/JBHI.2016.2634698. Rank: 14/105 (Q1, CompSci/InterdisApplic) Impact Factor: 3.850.

2) Research projects

- **Ref:** PID2020-116051RB-I00. **Title:** Circular Economy in the Process Industries: Methods and Tools for automatic recommendation of Process Technologies enabling Circular Integration (CEPI). **Funding Entities:** MINECO. **PR:** Moisès Graells/Antonio España. **Entity:** UPC. **Dates:** 1/9/2021-31/8/2024. **Amount:** 176.660€. **Role:** Researcher.
- **Ref:** H2020-ICT-H2020-1-957331. **Title:** Towards AI powered manufacturing services, processes, and products in an edge-to-cloud-knowlEdge continuum for humans [in-the-loop] (KnowlEdge). **Funding Entities:** European Union. **PR:** Stefan Walter. **Entity:** VTT. **Dates:** 1/1/2021-31/12/2023. **Amount:** 312.500€ for UPC, Global: 5.996.151,25 €. **Role:** Researcher and UPC Principal Researcher.
- **Ref:** FES-CO2-065-2018. **Title:** Implementation of an Optimization System of the Biological Process for Wastewater Treatment Plants. **Funding Entities:** Fondo de Carbono para una Economía Sostenible (FES-CO2), Oficina Española de Cambio Climático (OECC), Ministerio para la Transición Ecológica (MITECO). **PR:** Nicolás Zamora **Entity:** CCB, S.L. **Dates:** 1/1/2019-31/11/2019. **Amount:** 22.000€. **Role:** Researcher.

- **Ref:** H2020-SPIRE-2015-680843 **Title:** Secure Management Platform for Shared Process Resources (SHAREBOX). **Funding Entities:** European Commission 2015. **Principal Researcher:** Colm Digby. **Entity:** IRIS, S.L. **Dates:** Sep 2015-Sep 2019. **Amount:** 5.416.546€ (284.139€ UPC). **Participation:** UPC Principal Researcher.
- **Ref:** TIN2014-60557-R **Title:** Intelligent recommender of personalized diets from an integrated observation of personal characteristics, life-style and health and genetic condition (Diet4You). **Funding Entities:** MINECO. **Principal Researcher:** Karina Gibert. **Entity:** EIO-UPC. **Dates:** Jan 2015-Dec 2017. **Amount:** 137.500 €. **Participation:** Researcher.
- **Ref:** TIN2011-14083-E. **Title:** Spanish Excellence Thematic Network for the Advancement and Transfer of Applied Computational Intelligence (ÁTICA). **Funding Entities:** MICINN 2011. **Principal Researcher:** Miquel Sànchez Marrè. **Entity:** CS-UPC. **Dates:** 1/1/2012-30/6/2013. **Amount:** 12.000 €. **Participation:** Principal Researcher.
- **Ref:** FP7-246193-TEXWIN. **Title:** Textile Work Intelligence by closed-loop control of product and process quality in the Textile Industry (TEXWIN). **Funding Entities:** European Commission. **Principal Researcher:** Dieter Stellmann. **Entity:** DITF. **Dates:** 16/3/2010-15/9/2013. **Amount:** 3.293.699€ (418,060€ UPC). **Participation:** Researcher and Principal Researcher for Artificial Intelligence tasks.
- **Ref:** 2009 SGR 1365. **Title:** Knowledge Engineering and Machine Learning Group. **Funding Entities:** AGAUR. **Principal Researcher:** Miquel Sànchez Marrè. **Entity:** CS-UPC. **Dates:** 30/9/2009-30/4/2013. **Amount:** 47.840€. **Participation:** Principal Researcher.

3) Contracts, technological or transfer merits

- Pioneer and launching member of **SANEJAMENT INTEL·LIGENT S.L. (SANINTEL, SISLtech)**, spin-off company (2003-2017) formed at University of Girona (UdG) with the collaboration of Universitat Politècnica de Catalunya (UPC). NIF B17744970. March 25 2003.

4) Patents

- **Title:** Computer implemented method for dissimilarity computation between two yarns to be used for setting of a textile machine in a textile process, and computer program product. **Type of industrial property:** Patent of invention. **Inventors:** Miquel Sànchez Marrè; Beatriz Sevilla Villanueva; Thomas V. Fischer. **Titular entity:** Universitat Politècnica de Catalunya, Deutsche Institute für Textil-und Faserforschung Denkendorf. **# of application:** EP14179279.6. **Priority country:** Spain. **Date:** July 31, 2014. **EU Patent:** Yes.

5) Invited Conferences

- **Stochastic Learning for Dynamic Clustering.** In Workshop Methods and Application of Data Science and Engineering. Universidad Carlos III de Madrid. Leganés. Jan 30, 2018.
- **From Data Mining to Big Data & Data Science: a Computational perspective.** In Summer School 2013: Big Data & Data Science, University of Santiago de Compostela. July 19, 2013.
- **Artificial Intelligence Tools applied to Real World.** In Laboratoire de Biologie de l'Environnement (LBE), Institute de Recherche Agronomique (INRA), Narbonne, France. July 12, 2012.
- **What can do Artificial Intelligence for the Environment?** In Catalan Institute for Water Research (ICRA), Girona. March, 27th 2012.

6) Participation in Assessment Tasks for Research and Teaching Agencies

- Project Reviewer of **Excellence Projects 2012, 2011, 2007** from **La Junta de Andalucía**.

- Expert Assessment for **Full Professor chair in Environmental Informatics** for University of Eastern Finland, Finland. January 2012.
- Reviewer of **Recognised Research Groups** for **ANEP** (Dec 2008) and **Research Projects** for **ANEP** (Feb 2007).
- Project reviewer for **Swiss National Science Foundation (SNSF)**. Sept. 2008.
- Project reviewer for **Abroad Grants (BE), Visitant Researcher Grants (PIV)**, for AGAUR. Generalitat de Catalunya. Editions: 2007, 2006.
- Project reviewer for **the 1st edition of Research Project Grants from Balearic Islands**, through AGAUR. Generalitat de Catalunya. November de 2006.

7). Participation in International Committees

- Member of International Program Committees: **IJCAI-PRICAI 2020, ISESS 2020, CCIA (2023-2006), iEMSS (2016-2002), IEA/AIE (2019,2015-2006), CBR-MD (2019-2018), ICA 2013, CAEPIA'11, ISESS 2011, ITEE-2009, ECEM 2005, SIMOD'2005, IWWST (05-04), ECEM/EAML 2004.**
- Member of International Workshop Program Committees: **ECAI-SP4HC 2020, BASNAM 2011, AIAEP-AIAI 2009, IJCAI-EDSS'2003, AAI-EDSSAI'99, ECAI-BESAI'2006, ECAI-BESAI'2004, EU-LAT Workshop on e-Environment'04, ECAI-BESAI'2002, ECAI-BESAI'2000, ECAI-BESAI'98.**

8) Management of Scientific Research

- **Chair of Doctoral Symposium SEMÁTICA 2014.** UPC. November 20-21, 2014.
- **Chair of the 2nd Contest “Your Ph.D. Thesis in 3 minutes” (T3M) in Computational Intelligence.** Universitat Politècnica de Catalunya. November, 20th 2014.
- **Chairman de la 12th International Conference of the Catalan Association of Artificial Intelligence (CCIA'2009).** Cardona, Barcelona, October 21-23, 2009.
- **Chairman del 4th International Congress on Environmental Modelling and Software (iEMSS'2008).** Barcelona. July 6-10, 2008.

9) Additional Awards and Honours

- **Best paper award of ECAI 2020 Workshop on Singular Problems for Healthcare (SP4HC),** ECAI 2020, Santiago de Compostela. August 29 – September 8, 2020.
- The journal article **Designing and Building real Environmental Decision Support Systems**, *Environmental Modelling & Software* 19(9):857-873 (2004), was in the TOP25 internet downloaded articles in the website of the journal during July-December 2004. It was the 2nd most downloaded in July-September 2004, and the 13th in October-December 2004.
- **Accésit of the award Oms i De Prat 1991**, funded by Caixa de Manresa, in Experimental and Applied Sciences for: *DEPUR: Application of Knowledge-Based Systems to the diagnosis in Wastewater Treatment Plants* (Master's Thesis). Nov. 15, 1991.

10) Stays in Research Centres

- Research stay at **Laboratoire de Biotechnologie de l'Environnement (LBE)**, Institute de Recherche Agronomique (INRA), Narbonne, France. 9–13 July 2012.
- Sabbatical Research stay at **Catalan Water Research Institute (ICRA)**. Girona, Spain. From 1/9/2011 al 8/7//2012, and from 14/7/2012 al 31/8/2012.
- Research stay at **Dept. of Computational System Engineering, Universidad de Las Américas (UDLA)**. Puebla, México. From 12/2/1998 to 15/3/1998.

11) Editorial Tasks

- **Invited Co-Editor of 8 special issues on 5 international journals:** *Modelling* in 2020, *AI Communications* (Vol. 18(4) in 2005, Vol. 16(4) in 2003 & Vol. 14(1) in 2001), *Environmental Modelling & Software* (Vol. 19(9) in 2004 & Vol. 14(5) in 1999), *Computer_Aided Civil & Infrastructure Engineering* (Vol. 17(2) in 2002), *Applied Intelligence* (Vol. 13(1) in 2000).