CURRICULUM VITAE

Carme Torras Genís
Instituto de Robótica e Informática Industrial (CSIC-UPC)
http://www.iri.upc.edu/people/torras
http://www.iri.upc.edu/research/perception
https://clothilde.iri.upc.edu/
ORCID Identifier: 0000-0002-2933-398X
Researcher ID: M-1794-2014

1 Academic degrees

1978: *M.Sc. in Mathematics* (licenciatura), Universitat de Barcelona (UB).

1981: *M.Sc. in Computer Science*, University of Massachusetts (UMass), Amherst.

1983: *Master thesis in Mathematics* (grado y premio extraordinario de licenciatura), Universitat de Barcelona (UB).

1984: *Ph.D. in Computer Science*, Universitat Politècnica de Catalunya (UPC).

2 Professional and academic positions

1978-1979: *Systems Analyst* at Texas Instruments, Spain.

1979-1981: *Fulbright Scholar* in the Department of Computer Science at the University of Massachusetts.

1981-1986: *Research Assistant* at the Institut de Cibernètica (CSIC-UPC).

1986-1987: *Associate Professor* in the area of Systems Engineering and Automatics at UPC.

1987-1991: *Scientific Researcher* at the Spanish National Research Council (CSIC).

1991-pres.: *Research Professor* at the Spanish National Research Council (CSIC).

3 Biographical sketch

Carme Torras graduated in applied mathematics and, thanks to a Fulbright scholarship, studied Computer Science at the University of Massachusetts (Amherst). Her doctoral thesis (published in Lecture Notes in Biomathematics, Springer-Verlag - see [b.1]) on temporal signal processing in motor neurons opened an innovative line of research that has been subsequently explored by the international scientific community.

Later she adapted the mechanisms of motor neurocontrol to the learning and planning of robot motion. This is a research line that Prof. Torras has pursued at the Instituto de Robótica e Informática Industrial (IRII), where she leads a research team that has been recognized as Consolidated Robotics Group by the Government of Catalonia continuously from 1997 to the present.

The pioneering work of Prof. Torras in the application of neural models to robotics is reflected in the large number of European projects on this subject that she has promoted and led, from the four ESPRIT projects in the period 1992-1995 (SUBSYM, PROMotion, B-LEARN and CONNY), to five projects led in the past decade: PACO-PLUS, GARNICS, IntellAct, I-DRESS and IMAGINE. Currently, she leads her ERC Advanced Grant CLOTHILDE: "CLOTH manIpulation Learning from DEmonstrations" (2018-2023), and she is CSIC's leader of the Horizon Europe project SoftEnable.

Some of these projects have resulted in technology transfer. In the CONNY project, the IRII group developed two software packages, one for visual positioning of robots for Thomson CSF, which was patented, and another for automatic recalibration of a space robot, which was installed on the mock-up of the International Space Station at Daimler-Benz Aerospace in Bremen. Under the GARNICS project, the patent "Robotized cutting tool and sample extraction" (ES2395931A1, WO2013011180A1) was published.

The integration in the group of researchers with complementary profiles (industrial, mechanics and telecommunications engineers, experts in artificial intelligence and software engineering, and mathematicians) has helped to address difficult and wide-ranging problems. The wide variety of prestigious journals that have published the results give a good account of it. For example, articles on parallel manipulators are the product of a fruitful collaboration with algebraic geometers, and have appeared in both mathematics and robotics journals with high impact, given the importance of the results obtained for the control of these manipulators.

Prof. Torras has supervised 19 doctoral theses and some of her doctoral students are now highly recognized researchers holding academic positions as Professor at University of Texas-Austin and winner of the IEEE Norbert Wiener Award 2011 (José del R. Millán), CSIC Research Professor (Federico Thomas), Executive Dean of the Faculty of Science and Technology at the University of Canberra (Elisa Martínez), Professor at UFPR (Eduardo Todt), as well as executive positions in leading companies like Roca (Joan Ilari) and Bosch (Leonel Rozo).

She maintains a high dedication to editorial tasks, having been Associate Editor of 9 journals, Editor of the IEEE Transactions on Robotics, and Associate Vice-President for Publications of the IEEE Robotics and Automation Society (RAS).

Prof. Torras has served the research community in several ways. She was a member of the Area Committee of Physics Sciences and Technologies of CSIC (1993-96, 2004-08), the Administrative Committee of IEEE RAS (2016-18), and the Scientific and Technical Committee of the Spanish Research Agency (AEI) (2017-19). She is currently co-coordinator of AIHub-CSIC, and a member of the Advisory Panel of the Swiss National Center of Excellence (NCCR) in Robotics (2016-pres.), the Valencian Advisory Board on AI (ValgrAI) (2021-pres.), and the Advisory Council on Artificial Intelligence of the Spanish Government (2020-pres.), among others.

Her commitment to promote Ethics in Robotics has led her to write two science fiction novels and participate in nine collective volumes, where ethical issues in technology play a key role. Her novel *La mutació sentimental* (Pagès Editors, 2008), winner of the Manuel de Pedrolo and Ictineu awards, has been translated into Spanish (Editorial Milenio, 2012) and into English as *The Vestigial Heart* (MIT Press, 2018), and published along with online materials to teach a university course on "Ethics in Social Robotics and AI". Since 2020, she is a member of the Advisory Committee of Ethics in AI of the Catalan Government, the Ethics Committee of UPC, and Vice-President of the Ethics Committee of CSIC.

Prof. Torras has obtained several awards and honors: Narcís Monturiol Medal of the Government of Catalonia (2000), Fellow of the European Association for Artificial Intelligence (2007), member of Academia Europaea (2010), member of the Royal Academy of Sciences and Arts of Barcelona (2013), and member of the Institut d'Estudis Catalans (2017). She was elected member of the Administration Committee (AdCom) of the IEEE Robotics and Automation Society (RAS) to serve in the period 2016-18. In 2019 she was elevated to IEEE RAS Fellow, recognized as ICT Professional of the year by the Generalitat de Catalunya, and awarded the IV 'Julio Peláez' Prize by the Tatiana Pérez de Guzmán el Bueno Foundation for her pioneering work in applied mathematics. In 2020, she received both the Catalan National Research Award and the Spanish National Research Award 'Julio Rey Pastor' in Mathematics and Information and Communication Technologies.

4 Leadership and participation in research projects

1982-84: *"Perception systems in robotics"* (Spanish CAICYT). Participant.

1984-88: *"Implementing sensor-based assembly robot systems with visual instruction"* (USA- Spain Joint Committee), in collaboration with Rensselaer Polytechnic Institute, Troy, New York. Participant

1985-87: *"Sensor-based robotic systems for assembly under visual instruction"* (Spanish CAICYT). Participant.

1987-90: *"Specialist systems for planning and executing assembly tasks with robots"* (Ramón Areces Foundation). Participant.

1988-91: *"Automatic spatial reasoning based on constraints"* (Spanish CICYT, TIC-88-0197). **Principal investigator.**

1989-91: *"Acquisition of Behavioral Knowledge for Autonomous Systems Operating in Real Environments"* **(B-LEARN) (ESPRIT II BRA 3352, Consortium 3275)**. Partners: Universidade Nova de Lisboa, Universidad de Udine, Universidad de Torino, Universität Karlsruhe, Fraunhofer-Institut für Information Technology, and Universidad de Genoa. **Co-principal investigator** for UPC.

1989-91: *"Algorithms and Complexity" (ALCOM)* (ESPRIT II BRA No. 3075). Partners: Paris Ehess, Aarhus Universitet, University of Warwick, Universita Degli Studi di Roma La Sapienza, Universiteit van Utrech, Frei Universität Berlin, Universität des Saarlandes, INRIA Rocquencourt, INRIA Sophia Antipolis, Trinity College Dublin, and Computer Technology Institute Patras. Participant.

1989-92: *"Perception system with multisensory integration for robotics and automation"* (Spanish CICYT ROB-89-0287). Participant.

1989-93: *"Self-organization and Analogic Modeling using Subsymbolic Computing"* **(SUBSYM) (ESPRIT II BRA No. 3234)**. Partners: Vrije Universiteit Brussel, Lappeenrranta Uni- versity Technology, Rolf Nevanlinna Institute, Universität Hamburg y Université Libre de Bruxelles. Advisor in the first stages of the project and **principal investigator** for CSIC afterwards.

1991-92: *"Connectionist Approaches to Robot Path Finding"* (Commission of the European Communities Contract No. 4356-91-05 TS ISP E), in collaboration with the Joint Research Centre of the CEC in Ispra, Italia. **Principal investigator** for CSIC.

1991-94: *"Self-organized and recurrent neural networks for system identification, control and optimization"* (Spanish CICYT TIC-91-0423). **Principal investigator**.

1992-95: *"Robot Control based on Neural Network Systems"* **(CONNY) (ESPRIT III Type- A No. 6715)**. Partners: MBB-ERNO, Thompson, CRAM, Mimetics, University College of London, and FRAMATOME. **Principal investigator** for UPC.

1992-95: *"Planning RObot Motion"* **(PROMotion) (ESPRIT III BRA No. 6546)**. Partners: LAAS-CNRS, Université de Paris VI, Utrecht University, Universita di Roma y INRIA de Sophia-Antipolis. **Principal investigator** for UPC.

1992-95: *"Behavioural Learning: Combining Sensing and Action"* **(B-LEARN II) (ESPRIT III BRA No. 7274)**. Partners: Universität Karlsruhe, Universidade Nova de Lisboa, Uni- versità di Torino, Universität Dortmund, Katholieke Universiteit Leuven, and Università di Genoa. **Co-principal investigator** for UPC.

1992-93: *"Behavioural Learning II"* (Commission of the European Communities Contract No. 5032- 92-11 TG ISP E), subcontract to the Joint Research Centre of the CEC in Ispra, Italia. **Principal investigator** for UPC.

1993-96: *"Hazardous Environment ROboticS (HEROS)"* (Scientific Network, Human Capital and Mobility Program, CEC). Nodes: IMAG/ INRIA de Grenoble, LAAS/CNRS de Toulouse, Università di Genoa, Scuola Superiore S. Anna de Pisa, University of Oxford, University of Leuven, and Universität Karlsruhe. Participant.

1993-96: *"Nonlinear Mathematical Modeling: Theoretical and Numerical Aspects"* (Commis- sion of the European Communities Contract ERB CI1*-CT92-0046). Partners: Univer- sidad de Chile, CNRS de Luminy, Bayreuth Universität, Universidad Complutense de Madrid, and Université Clermont. **Principal investigator** for UPC.

1993-96: *"Neural and Computational Learning (NeuroCOLT)"* (Esprit III Working Group). Partners: London University, Centre for Mathematics and Computer Science of SMC at Amsterdam, Ecole Normale Supérieure de Lyon, Université di Milano, Technische Universität Graz, University of Helsinki, RWTH Aachen, and Université de Mons. Participant.

1993-96: *"Subsymbolic techniques for constraint satisfaction, vision, and robotics"* (Spanish CICYT TAP93-0451). Participant.

1996-99: *"Analysis of spatial constraints and its application to mechanical design and simula- tion of robotic tasks"* (Spanish CICYT TIC96-0721-C02-01). Participant.

1996-99: *"Parallel Computing Modelling for Industrial Problems (PARALIN)"* (INCO-DC Project No. 950845). Partners: MATRA Cap Systèmes SA, Union Iberoamericana de Tecnología SA, Empresa Eléctrica Pehuenche SA, Centro de Investigación Minera y Metalúrgica de Chile, Administración de Usinas y Transmisiones Eléctricas de Uruguay, Ecole Normale Supérieure de Lyon, Universidad de Chile, INRIA-Rocquencourt, and Universidad de la República de Uruguay. Participant.

1997-98: *Consolidated research group on "Robotics and Control"* (1997SGR 00464, Generalitat de Catalunya). **Group leader**.

1997-98: *"Neuronal Learning in Robotics. Applications to Mining"* (Joint project CSIC-Universidad de Santiago de Chile). Participant.

1997-2000: *"Vision-based navigation of autonomous robots in unstructured environments"* (Spanish CICYT TAP97-1209). Participant.

1999-2000: *Consolidated research group on "Robotics and Control"* (1999SGR 00200, Gener- alitat de Catalunya). **Group leader**.

1999-2002: *"Constraint-based computation in robotics and resource management"* (Spanish CI- CYT TAP99-1086-C03). Joint project with IIIA (CSIC) and the LSI Department (UPC). **Project coordinator and principal investigator** of subproject 1.

2000-02: *"European Robotics Research Network"* **(EURON)** (Network of Excellence, Commis- sion of the European Communities Contract IST-2000-26048). **Principal investigator** for CSIC.

2000-03: *"Solving systems of kinematic equations for mechanism simulation, interactive object positioning, and molecular conformation"* (Spanish CICYT TIC2000-0696). Participant.

2000-03: *"Autonomous navigation of robots guided by visual targets"* (Spanish DPI2000-1352- C02-01). Participant.

2001-04: *Consolidated research group on "Robotics and Control"* (2001SGR 00360, Generalitat de Catalunya). **Group leader**.

2003-04: *"Design and implementation of efficient parallel algorithms for Distance Geome- try, with applications in Kinematics and Computational Proteomics"* (Spanish TIC2003- 03396). Participant.

2003-05: *"European Robotics Research Network"* **(EURON-II)** (Network of Excellence, Com- mission of the European Communities Contract IST-507728). **Principal investigator** for CSIC.

2003-06: *"Reconfigurable system for vision-based navigation of legged and wheeled robots in natural environments (SIRVENT)"* (Spanish DPI2003-05193-C02-01). Participant.

2005-07: *"Trajectory planner for robotic systems of arbitrary architecture"* (Spanish DPI2004- 07358). Participant.

2005-09: *Consolidated research group on "Robotics"* (2005SGR 00038, Generalitat de Catalunya). **Group leader.**

2006-07: *"Study of tensegrity structures for the development of sensors, manipulators, and mobile robots"* (Spanish DPI2006-14001). Participant.

2006-07: *"Artificial Vision System for the Robstar Application".* Contract of UPC with RO- BOSOFT S.A., Bidart, France. **Co-principal investigator** for UPC.

2006-10: *"Perception, Action & Cognition through Learning of Object-Action Complexes"* **(PACO- PLUS) (CogSys Integrated Project IST-FP6-IP-027657)**. Partners: Universitat Karlsruhe, Kungliga Tekniska Hogskolan, Universitat Gottingen, Aalborg University, Jozef Stefan Institute, Leiden University, University of Edinburgh, and ATR Computational Neuroscience Laboratories. **Co-principal investigator** for CSIC.

2008-10: *Complementary grant to the european project PACO-PLUS* (Spanish DPI2008-01777- E). **Principal investigator**.

2008-11: *"Perception and action under uncertainty" (PAU)* (Spanish DPI2008-06022). Participant.

2010-13: *"Gardening with a Cognitive System"* **(GARNICS) (CogSys STREP Project FP7-ICT-247947)**. Partners: Forschungszentrum Julich GmbH, Universitat Gottingen, and Linkopings Universitet. **Principal investigator** for CSIC.

2011-12: *"Programmable surfaces"* (Spanish DPI2011-13208-E). Participant.

2011-14: *"Perception and Action in Robotics Problems with Large State Spaces (PAU+)"* (DPI2011- 27510). Participant.

2011-14: *"Intelligent observation and execution of actions and manipulations"* **(IntellAct) (CogSys STREP Project FP7-ICT-269959)**. Partners: Syddansk Universitet, Uni- versitat Gottingen, Universitaet Innsbruck, Aachen Technische Universitat, and Jozef Ste- fan Institute. **Principal investigator** for CSIC.

2015-17: *"Instructing robots using natural communication skills (RobInstruct)"* (TIN2014-58178- R). Participant.

2015-18: *"Assistive interactive robotic system for support in dressing"* **(I-DRESS) (Euro- pean CHIST-ERA 2014 Call)**. Partners: University of West of England and IDIAP Research Institute. **Project coordinator**.

2016-17: *"Safe multi-modal interaction with robot manipulators"* **(SAMMIR) (i-Link project)**. Partners: Umea Universitet, Ben-Gurion University, Bristol Robotics Lab, and Pal Robotics. **Project coordinator**.

2017-21: *"SOcial Cognitive Robotics in The European Society"* **(SOCRATES) (H2020-MSCA-ITN-2016-721619)**. Partners: Umea Universitet, Ben-Gurion University, University of West England, Orebro University, Fraunhofer Angewandten Forschung, and Hamburg Uni- versitaet. Participant.

2017-21: *"Robots understanding their actions by imagining their effects"* **(IMAGINE) (H2020- ICT-2016-731761)**. Partners: Universitaet Innsbruck, Universitaet Gottingen, Karlsruhe Institute of Technology, INSA Rennes, and ELECTROCYCLING GMBH. **Principal investigator** for CSIC.

2017-20: *Consolidated research group on "Robotic perception and manipulation"* (2017 SGR 1785, Generalitat de Catalunya). **Group leader**.

2017-21: *"Human centered robotics"***, María de Maeztu Unit of Excellence (MDM-2016-0656).** Guarantee researcher.

2018-20: *"Facilitate the introduction of robotics to new processes and applications within industry"* **(SIMBIOTS) (COMRDI16-1-0017)**. Participant.

2018-20: *"Markerless 3D human motion understanding for adaptive robot behavior"* (HUMOUR) (TIN2017-90086-R). Participant.

2018-23: *"Cloth manipulation learning from demonstrations"* **(CLOTHILDE) ERC Advanced Research Grant (H2020-ERC-2016-AdG-741930)**. **Principal investigator**.

2019-22: *"Benchmarks for Understanding Grasping"* **(BURG) (European CHIST-ERA 2017 Call)**. Partners: Technische Universität Wien, University of Birmingham, and Istituto Italiano di Tecnologia. Participant.

2021-22: *"Ayuda extraordinaria a Unidad de Excelencia María de Maeztu"* (AECEX - 20215CEX009). **Principal investigator**.

2021-22: *"PTI+ Neuro-Aging: Entender el envejecimiento desde la I+D+I", subproject: Assistive Robotics.* **Principal investigator** for IRI.

2021-24: *"Robots para la asistencia continua y personalizada capaces de explicarse a sí mismos"* (ROB-IN) (MCIN PLEC2021-007859). Partners: Suara Serveis, Datision, and TALP-UPC. Participant.

2021-24: *"A state-of-the-art wearable system to assess upper limb motor function in reallife conditions for patients with Duchenne muscular dystrophy and spinal muscular atrophy"* (ArmTracker) (Project La Marató 202023). Partners: Hospital Sant Joan de Déu, Biomechanical Engineering Lab at UPC. **Principal investigator** for CSIC.

2021-24: *Consolidated research group on "Robotic perception and manipulation"* (2021 SGR 00514, Generalitat de Catalunya). **Group leader**.

2022-26: *"Towards Soft Fixture-Based Manipulation Primitives Enabling Safe Robotic Manipulation in Hazardous Healthcare and Food Handling Applications"* **(SoftEnable) (HorizonEurope GA: 101070600)**. Partners: Kungliga Tekniska Högskolan, Deutsches Zentrum für Luft- und Raumfahrt EV, Technion - Israel Institute of Technology, Ocado Innovation Limited, Fundació Clínic per a la Recerca Biomèdica. **Principal investigator** for CSIC.

5 Technology transfer, licensed software and patents

1995: *Software package for the visual positioning of robots*, developed jointly with Thomson CSF, which patented it (see [ij.17]). Outcome of the project CONNY.

1995: *Software package for the automatic recalibration of a space robot*, which was installed on the mock-up of the International Space Station at Daimler-Benz Aerospace in Bremen (see [ij.18]). Outcome of the project CONNY.

2000-03: *Development of an automatic and flexible transport system between workbenchs of the Centre of Computer Integrated Manufacturing of UPC (STAFF)* (CeRTAP - Centre de Re- ferència en Tecnologies Avançades de la Producció, Generalitat de Catalunya). **Principal investigator** for IRI.

2002-05: *Vehicle positioning system based on laser and vision* (CeRTAP - Centre de Referència en Tecnologies Avançades de la Producció, Generalitat de Catalunya). **Principal inves- tigator** for IRI.

2006: *Vision-based driving aid for the NICOLAS-VTCU vehicle.* Contract of UPC with RO- BOSOFT S.A., Bidart, France. **Co-principal investigator** for UPC.

2006-07: *Artificial Vision System for the Robstar Application.* Contract of UPC with RO-BOSOFT S.A., Bidart, France. **Co-principal investigator** for UPC.

2013: Alenyà G., Grosch P., Torras C. and Palacín M.: *Robotized cutting tool and sample extrac- tion*, **Spanish patent ES2395931A1, World patent WO2013011180A1**. Outcome of project GARNICS.

2015-2017 *TermoSold (CDTI-IDI-20150175): Desarrollo de un sistema basado en técnicas de inteligencia artificial para la inspección de soldaduras en líneas de envasado horizontal.* Contract of UPC with Volpak, Santa Perpètua de la Mogoda. Participant.

2018-2020 *AIPICS (CDTI-IDI-20171164): Desarrollo de un sistema integral de control de la producción dotado de inteligencia artificial y capacidad de autodecisión.* Contract of UPC with INFUN, Sant Vincenç dels Horts. Participant.

2018-2020 *SLD (CDTI-IDI-20171038): Proceso automatizado de detección y clasificación inteligente de pieles (smart leather detector).* Contract of UPC with LABCAT, Igualada. Participant.

6 Publications

Carme Torras has authored 3 books, co-authored 2 books, edited 1 book, and co-edited 2 proceedings. She has authored or co-authored 144 journal papers (65 in the last ten years), and 233 conference papers and book chapters (80 in the last ten years).

6.1 Books

[b.1] Torras C.: *"Temporal-Pattern Learning in Neural Models"*. Lecture Notes in Biomathematics, núm. 63. Berlin Heidelberg New York: Springer-Verlag, 1985.

[b.2] Ferraté G., Amat J., Ayza J., Basañez L., Ferrer F., Huber R. and Torras C.: *"Robótica Industrial"*. Barcelona: MARCOMBO, 1986.

[b.3] Torras C. (ed.): *"Computer Vision: Theory and Industrial Applications"*. Springer-Verlag: Berlin Heidelberg New-York, 1992.

[b.4] Gini M., Shen W-M., Torras C. and Yuasa H. (eds.): *"Intelligent Autonomous Systems 7"*. IOS press: Amsterdam, 2002.

[b.5] Alsinet T., Puyol-Gruart J. and Torras C. (eds.): *"Artificial Intelligence Research and Development"*. Proc. 11th Intl. Conf. of the Catalan Assoc. for AI. IOS Press: Amsterdam, 2008.

[b.6] Torras C. *"The Vestigial Heart. A Novel of the Robot Age"*. The MIT Press, 2018. (Published together with online materials to teach a university course on 'Ethics in Artificial Intelligence and Social Robotics'.)

[b.7] Torras C. *"Aprenentatge Automàtic en Xarxes i Robots: Reptes Tecnocientífics i Implicacions Ètiques"*. Institut d'Estudis Catalans. Secció de Ciències i Tecnologia, 2018.

[b.8] Colomé A. and Torras C.: *"Reinforcement Learning of Bimanual Robot Skills"*. Springer Tracts in Advanced Robotics (STAR), vol. 134, Springer, 2020.

6.2 Chapters in books

[bc.1] Torras C.: "Concepto y perspectivas de la visión por computador". Chapter 5 in *"In- teligencia Artificial: Introducción y situación en España"*, edited by R. Valle, J. Barberá and F. Ros, Report Series FUNDESCO, pp. 85-103, Nov. 1984.

[bc.2] Basañez L. and Torras C.: "Planificación, control y supervisión de la ejecución en los robots industriales". Chapter 27 in *"Sistemas de CAD/CAM/CAE"*, edited by J. Mompín, MARCOMBO, 1986.

[bc.3] Torras C.: "Planificación para la resolución de problemas". Chapter 4 in *"Inteligencia Artificial: Conceptos, Técnicas y Aplicaciones"*, edited by J. Mompín, MARCOMBO, 1987.

[bc.4] Torras C. and Sanfeliu A.: "Sistemas expertos para la industria". Chapter 10 in *"Inteligencia Artificial: Conceptos, Técnicas y Aplicaciones"*, edited by J. Mompín, MAR- COMBO, 1987.

[bc.5] Torras C.: "Exploring three possibilities in network design: Spontaneous node activity, node plasticity and temporal coding". In *"Neural Computers"*, edited by R. Eckmiller and C. von der Malsburg, pp. 301-310, Springer-Verlag, 1988.

[bc.6] Torras C.: "Sensorimotor integration in robots". In *"Visuomotor Coordination: Experiments, Comparisons, Models and Robots"*, edited by P. Ewert and M.A. Arbib, pp. 673-689, Plenum Press, 1989.

[bc.7] Torras C.: "Planning for problem solving: A survey". In *"AI and Expert Systems in Scientific Computing"*, IMACS Transactions Series, edited by R.M. Huber, C. Kulikowski, J.M. David and J.P. Krivine, IMACS Transactions Series, Baltzer Scientific Publishing Co., 1989.

[bc.8] Torras C.: "Neuronal Oscillators: Experiments and Models". In *"Statistical Mechanics and Neural Networks" (Proc. of the XI Sitges Conference)*, edited by L. Garrido, Lecture Notes in Physics, pp. 65-79, Springer-Verlag, 1990.

[bc.9] Torras C.: "Neural Learning Algorithms and their Applications in Robotics". In *"Self-organization, Emergent Properties, and Learning"*, edited by A. Babloyantz, pp. 161-176, Plenum Press, 1991.

[bc.10] Torras C.: "Robot Motion Planning: A Survey". In *"Teleoperation: Numerical Simula- tion and Experimental Validation"*, edited by M.C. Becquet, Eurocourses: Computer and Information Science, Vol. 4, pp. 27-39, Kluwer Academic Publishers: Dordrecht Boston London, 1992.

[bc.11] Millán J. del R., Torras C., and Becquet M.C.: "Autonomous Mobile Robots and Teleoperation". In *"Teleoperation: Numerical Simulation and Experimental Validation"*, edited by M.C. Becquet, Eurocourses: Computer and Information Science, Vol. 4, pp. 41- 53, Kluwer Academic Publishers: Dordrecht Boston London, 1992.

[bc.12] Torras C.: "Segmentation". In *"Computer Vision: Theory and Industrial Applica- tions"*, edited by C. Torras, Springer-Verlag: Berlin Heidelberg New-York, pp. 59-95, 1992.

[bc.13] Torras C.: "Symbolic Planning versus Neural Control in Robots". In *"Neuroscience: From Neural Networks to Artificial Intelligence"*, edited by P. Rudomín, M.A.

Arbib, F. Cervantes-Pérez and R. Romo, Research Notes in Neural Computing, Vol. 4, pp. 509-523, Springer-Verlag: Berlin Heidelberg New-York, 1993.

[bc.14] Celaya E. and Torras C.: "On Finding the Set of Inverse Kinematic Solutions for Redundant Manipulators". In *"Computational Kinematics"*, edited by J. Angeles, G. Hommel and P. Kovács, Kluwer Academic Publishers, pp. 85-94, 1993.

[bc.15] Thomas F. and Torras C.: "Positional inverse kinematic problems in $T^n \times^m R$ solved in $T^{2(n+m)}$". In *"Advances in Robot Kinematics"*, edited by J. Lenarcic and B. Ravani, pp. 291-300, Kluwer Academic Publishers, 1994.

[bc.16] Torras C.: "Robot Adaptivity". In *"The Biology and Technology of Intelligent Au- tonomous Agents"*, edited by L. Steels, NATO ASI Series F, Vol. 144, pp. 53-71, Springer- Verlag: Berlin Heidelberg New York, 1995.

[bc.17] Torras C.: "Robot Control". In *"Handbook of Brain Theory and Neural Networks"*, edited by M.A. Arbib, MIT Press: Cambridge, Massachusetts, pp. 820-823, 1995.

[bc.18] Torras C.: "Aplicaciones de las redes neuronales en robótica". In *"Computación Neuronal"*, edited by S. Barro and J. Mira, pp. 479-498, Publicaciones de la Universidade de Santiago de Compostela, 1995.

[bc.19] Jiménez P. and Torras C.: "Collision detection: a geometric approach". In *"Modelling and Planning for Sensor-Based Intelligent Robot Systems"*, edited by H. Bunke, T. Kanade and H. Noltemeier, pp. 68-85, World Scientific, 1995.

[bc.20] Millán J. del R. and Torras C.: "Efficient reinforcement learning of navigation strategies in an autonomous robot". In *"Intelligent Robots and Systems"*, edited by V. Graefe, pp. 185-200, Elsevier, 1995.

[bc.21] Jiménez P., Thomas F. and Torras C.: "Collision detection algorithms for motion planning". In *"Robot Motion Planning and Control"*, edited by J-P. Laumond, Lecture Notes in Control and Information Sciences, vol. 229, pp. 305-343, Springer-Verlag, 1998.

[bc.22] Ruiz de Angulo V. and Torras C.: "Learning of Nonstationary Processes". In *"Neural Network Systems, Techniques and Applications"*, Vol. 2: "Optimization Techniques", edited by C.T. Leondes, pp. 175-207, Series in "Advances in Control and Dynamic Sys- tems", Academic Press, 1998.

[bc.23] Torras C., Wells G. and Cembrano G.: "Redes Neuronales". In *"Reconocimiento de Formas y Análisis de Imágenes"* (electronic edition in CDROM), edited by J. Vitrià and A. Sanfeliu, AERFAI, ISBN 84-922529-4-4, 1998.

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6.5 International Conferences

Prof. Torras has published in the major conferences in the following three areas:

Robotics: 25 ICRA, 14 IROS, 3 Humanoids, 4 ICSR, 4 RO-MAN, 2 ICAR, RSS.

Artificial Intelligence: 6 ICANN, 3 ECAI, 3 AAAI, 2 IJCAI, 2 CP, ICAPS, ICML.

Computer Vision: 5 ICPR, 2 CVPR, 2 ACIVS, 2 VISAPP, MVA, BMVC, WACV.

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[nc.31] Boix A., Foix A. and Torras C.: "Garment manipulation dataset for robot learning by demonstration through a virtual reality framework". *24th Catalan Conference on Artificial Intelligence*, Sitges, pp. 199-208, IOS Press, 2022.

[nc.32] Colomé A. and Torras C.: "Mutual information weighing for probabilistic movement primitives". *24th Catalan Conference on Artificial Intelligence*, Sitges, pp. 365-368, IOS Press, 2022.

6.7 Other publications

[o.1] Torras C.: "Neural model for the recognition of temporal patterns of stimulation". *Master Thesis*, Computer and Information Sciences Department, University of Massachusetts, Amherst, Feb. 1981.

[o.2] Torras C. and García Larrea, L.J.: "El cerebro dividido" *Scientific Dissemination Prizes* of the Science Museum in Barcelona, June 1981.

[o.3] Torras C.: "Correspondència 2D-1D: Aplicació al càlcul de la TFD i la convolució circular", *Master Thesis*, Mathematics Faculty, Universitat de Barcelona, Jan. 1983.

[o.4] Torras C.: "Modelització i simulació de neurones i xarxes neuronals amb capacitat d'aprenentatge de patrons temporals". *Doctoral Thesis*, Computer Science Faculty, Universitat Politècnica de Catalunya, May 1984.

[o.5] Torras C.: "Computadors neuronals: Una nova generació?". *AVUI*, 1988.

[o.6] Torras C.: "Els robots intel.ligents demanen computadors neuronals". *7a. Universitat d'Estiu de Gandía*, Aug. 1988.

[o.7] Torras C.: "Report of the group discussion about 'neural networks in robotics'". In *"Sensor-Based Robots: Algorithms and Architectures"*, edited by C.S.G. Lee, NATO ASI Series F, Vol. 66, pp. 281-282, Springer-Verlag, Berlin Heidelberg New-York London Paris Tokyo HongKong Barcelona, 1991.

[o.8] Torras C. and Wells G.: "An Introduction to Neural Networks". *Course CIMPA on "Parallel Computing"*, Temuco, Chile, Jan. 1994.

[o.9] Torras C.: "Neural Learning Approaches to Robot Control". *Tutorial en el Technology Transfer Workshop on Industrial Vision, Advanced Robots and Medical Imaging (IVAR'94)*, Leuven, June 1994.

[o.10] Sainz M., Thomas F. and Torras C.: "Estimación de la granularidad mediante barrido láser". Report of the project PARALIN, *Technical Report IRI-DT-9707*, Institut de Robòtica i Informàtica Industrial (CSIC-UPC), Nov. 1997.

[o.11] Guimerà R., Torras C. and Bofill P.: "Aplicació de simulated annealing i teoria de camp mig a la generació de dissenys en blocs". *Technical Report IRI-DT-9901*, Institut de Robòtica i Informàtica Industrial (CSIC-UPC), Jan. 1999.

[o.12] Jangir R., Alenyà G. Torras C.: "Learning cloth manipulation with demonstrations". *Technical Report IRI-TR-19-01*, Institut de Robòtica i Informàtica Industrial (CSIC-UPC),

2019.

[0.13] Michel J., Kuh D., Kenny R., Reilly R., Ayalon L., Torras C. et al.: "Transforming the future of ageing". SAPEA (Science Advice for Policy by European Academies), 2019.

[0.14] Álvarez A., Arroyo L., Avila R., Crusellas E., de la Fuente M., Martínez L., Mata M., Ruiz T., Ruiz M. and Torras C.: "Les dades obertes i la intel·ligència artificial, eines per a la igualtat de gènere". *Volume 7 of Govern Obert*. Generalitat de Catalunya, 2020.

[0.15] Alenyà G., Villagrá J., Fernández R.E., González P., Haber R.E., Jiménez A.R., Ribeiro A., Rocón E., Borràs J., Moreno-Noguer F. and Torras C.: "Challenge 4: Intelligent robotics". In *"Artificial Intelligence, Robotics & Data Science"*, pp. 81-99. Consejo Superior de Investigaciones Científicas, 2021.

[0.16] Noriega P., Ausín T., Mueller H., Ellman M., Cardoso A.R., Aguiar F., López D., Toboso M.A., Wagner A., García A., Degli Esposti S., Miller L.M., Jiménez P., Pareto J. and Torras C.: "Challenge 6: Ethical, legal, economic, and social implications". In *"Artificial Intelligence, Robotics & Data Science",* pp. 121-141. Consejo Superior de Investigaciones Científicas, 2021.

7 Editorial tasks

7.1 Editor

- **IEEE Transactions on Robotics**, since January 2013 to December 2017.

7.2 Associate editor

- **AI Communications**, IOS Press, since December 1997. Previously, member of the Advisory Committee of this journal since 1992, and Area Editor of "Action and Perception" since November 1995.
- **International Journal on Computational Intelligence and Applications**, Imperial College Press - World Scientific Publishing, since August 1999.
- **Natural Computing**, Springer, since October 2002.
- **Theoretical Computer Science. C - Natural Computing**, Elsevier Publishing Company, since May 2003.
- **IEEE Transactions on Robotics**, from March 2010 to March 2013.
- Book collection **Natural Computing Series**, Springer-Verlag, since April 2003.

7.3 Editorial Board member

- **Connection Science**, Taylor & Francis Group, from January 1989 to August 2021.
- **Applied Bionics and Biomechanics**, Open Mind Journals Ltd., New Zealand, 2003-16.

- **Journal of Robotics**, Hindawi Publishing, from October 2008 to March 2011.
- **ARBOR - Journal of CSIC**, from March 2014 to July 2019.
- **Robotics and Autonomous Systems**, since July 2014.
- Handbook of Natural Computing (Area Neural Networks), Springer-Verlag, 2012.

7.4 Steering Committee member

- **IEEE Robotics and Automation Letters**, since its launching in 2016.

7.5 Special issue editor

- Guest Co-editor (together with F. Casacuberta) of the special issue on "Neural Networks" of the journal **Inteligencia Artificial**, num 1, Winter 1997.
- Member of the Editorial Board of the special issue on "Robot Learning: The New Wave" of the journal **Robotics and Autonomous Systems**, vol. 22, num 3-4, Dec. 1997.
- Member of the Review Panel of the special issue on "Biorobotics" of the journal **Connection Science**, vol. 10, num 3-4, Dec. 1998.
- Guest Editor of the special issue on "Adaptive Robots" of the journal **Connection Science**, vol. 11, num. 3-4, Dec. 1999.
- Guest Editor of the special issue on **"Neural Networks at IJCAI'01"** of the journal **Intl. Journal of Computational Intelligence and Applications**, vol. 1, num. 4, Dec. 2001.
- Guest Co-editor (together with M. Gini and W-M. Shen) of the special issue on "Best papers presented at IAS-7" of the journal **Robotics and Autonomous Systems**, vol.44, num.3/4, Sept. 2003.
- Guest Co-editor (together with R. López de Mántaras) of the special issue "Interlinked: Machines and humans facing the 10101 century". **Metode Science Studies Journal: Annual Review**, vol. 9, pp. 116-117, 2019.

7.6 Reviewer for journals

Artificial Intelligence
Autonomous Robots
Biological Cybernetics
Computer Methods in Applied Mechanics and Engineering
Computers & Graphics
Constraints Journal
Frontiers in Computational Neuroscience
IEE Proceedings
IEEE Robotics & Automation Letters
IEEE Trans. on Neural Networks

IEEE Trans. on Robotics
IEEE Trans. on Robotics and Automation
IEEE Trans. on Systems, Man and Cybernetics (Part B)
IEEE Trans. on Visualization and Computer Graphics
IEEE/ASME Transactions on Mechatronics
Image and Vision Computing
Informática y Automática
Integrated Computed-Aided Engineering
Intl. Journal of Robotics Research
Journal of Intelligent and Robotic Systems
Journal of Robotics and Autonomous Systems
Journal of the Canadian Society of Mechanical Engineering (CSME)
Machine Learning
Mechanism and Machine Theory
Neural Networks
Neurocomputing
Revue d'Intelligence Artificielle
Robotics and Autonomous Systems
Science Robotics
The Visual Computer

8 Conference organization tasks

8.1 Conference chairing

- 2nd PROMotion Workshop on "Robot Motion Planning", Barcelona, Oct. 1994. **Organizing Committee Chair**.

- IEEE Intl. Symp. on Computational Intelligence in Robotics and Automation (CIRA'97), Monterey, CA, July 1997. **Program Committee Co-chair** for Europe/Africa (together with Sukhan Lee -chair-, Toshio Fukuda -Asia/Oceania-, and George Lee -America-).

- 7th Intl. Conf. on Intelligent Autonomous Systems (IAS-7), Marina del Rey, California, March 2002. **Program Committee Co-chair** (together with Maria Gini -chair-, Wei-Min Shen, and Hideo Yuasa).

- Intl. Conf. on Artificial Neural Networks (ICANN-2002), Madrid, Aug. 2002. **Program Committee Co-chair** (together with José R. Dorronsoro -chair-, Senén Barro, Javier de Felipe, and Juan A. Sigüenza).

- ESF-JSPS Frontier Science Conference on "Robotics", Tokyo, March 2008. **Program Committee Co-chair** (together with Yoshihiko Nakamura and Juan Andrade-Cetto).

- 11th Ibero-American Conference on Artificial Intelligence (IBERAMIA'08), Lisbon, Portugal, Oct. 2008. **Area Chair** for Robotics and Vision.

- XI Congrés Català d'Intel.ligència Artificial (CCIA'08), Empúries, Girona, Oct. 2008. **Conference Co-chair** (together with J. Puyol-Gruart).

- IEEE Intl. Conf. on Robotics and Automation (ICRA-2015), Seattle, May 2015. **Senior PC member and Awards Co-chair** (together with Lydia Kavraki and Jessica Hodgins).
- Intl. Joint Conf. on Artificial Intelligence (IJCAI'17), Melbourne, August 2017. **Area Chair**.
- IEEE Intl. Conf. on Robotics and Automation (ICRA-2020), Paris, May-June 2020. **Workshops and Tutorials Co-chair** (together with Lydia Kavraki, Kazuhito Yokoi and Samer Mohammed).

8.2 Editor for Conference Review Board

- **IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS)**, 2015 - 2017.

8.3 Associate Editor for Conference Review Board

- **IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS)**, 2012 - 2013.
- **IEEE Intl. Conf. on Robotics and Automation (ICRA)**, 2013 - 2016.

8.4 Program Committee membership

- 1er Symposium Internacional sobre Ingeniería del Conocimiento, Madrid, Spain, Nov. 1985.
- 1er Congreso Iberoamericano de Inteligencia Artificial (IBERAM-IA), Barcelona, Jan. 1988.
- **2nd IEEE Conference on Neural Networks**, San Diego, California, USA, July 1988.
- III Reunión Técnica de Inteligencia Artificial (AEPIA-89), Madrid, Nov. 1989.
- 2o. Congreso Iberoamericano de Inteligencia Artificial (IBERAMIA'90), Morelia Michoacán, México, July 1990.
- **9th European Conference on Artificial Intelligence (ECAI-90)**, Stockholm, Aug. 1990.
- COGNITIVA'90, Madrid, Nov. 1990.
- First Intl. Workshop on Artificial Neural Networks (IWANN'91), Granada, Sept. 1991.
- IV Reunión Técnica de Inteligencia Artificial (AEPIA-91), Madrid, Oct. 1991.
- **2nd European Conference on Computer Vision (ECCV'92)**, Santa Margherita, Italia, May 1992.
- IFAC Intl. Symposium on Industrial Robots (ISIR'92), Barcelona, Oct. 1992.
- Second Intl. Workshop on Artificial Neural Networks (IWANN'93), Sitges, Barcelona, June 1993.
- 6th Intl. Conf. on Neural Networks and their Industrial and Cognitive Applications (NeuroNimes'93), Nimes, Oct. 1993.

- AMCA/IEEE International Workshop on Neural Networks Applied to Control and Image Processing (NNACIP'94), Mexico DF, Nov. 1994.

- 7th Intl. Conf. on Neural Networks and their Industrial and Cognitive Applications (NeuroNimes'94), Marseille, Dec. 1994.

- Third Workshop on Learning Robots, within the European Conference on Machine Learning (ECML'95), Heraklion, Crete, April 1995.

- Third Intl. Workshop on Artificial Neural Networks (IWANN'95), Málaga, June 1995.
- Trobada de Joves Investigadors (TJI'95), Bellaterra, Set. 1995.

- **Intl. Conf. on Artificial Neural Networks (ICANN'95)**, Paris, Oct. 1995.

- 6a Conf. de la Asociación Española de Inteligencia Artificial, Alicante, Nov. 1995.

- Intl. Conf. on Neural Networks and their Applications (NEURAP'95), Marseilles, Dec. 1995.

- Fourth European Workshop on Learning Robots, Karlsruhe, Dec. 1995.

- Intl. Symp. on Robotics and Automated Manufacturing (ISRAM'96), Montpellier, May 1996.

- Fifth European Workshop on Learning Robots, Bari, July 1996.

- **Intl. Conf. on Artificial Neural Networks (ICANN'96)**, Bochum, July 1996.

- European Workshop on Hazardous Robotics (HEROS'96), Barcelona, Nov. 1996.

- Third Intl. Conference on Neural Networks and their Applications (NEURAP'97), Marseilles, March 1997.

- **IEEE Intl. Conf. on Robotics and Automation (ICRA'97)**, Albuquerque, NM, April 1997.

- Fourth Intl. Workshop on Artificial Neural Networks (IWANN'97), Lanzarote, June 1997.

- Congreso Español de Informática Gráfica, Barcelona, June 1997.

- Conf. Towards Intelligent Mobile Robots (TIMR'97), Buxton, Sept. 1997.

- Congreso Español de Informática Gráfica (CEIG'98), Orense, June 1998.

- Seventh European Workshop on Learning Robots, Edinburgh, July 1998.

- **Intl. Conf. on Artificial Neural Networks (ICANN'98)**, Skoevde, Sweden, Sept. 1998.

- **Intl. Conf. on Intelligent Robotics Systems (IROS'98)**, Victoria, Canada, Oct. 1998.

- Primer Congrés Català d'Intel.ligència Artificial, Tarragona, Oct. 1998.

- Third Intl. Conf. on Autonomous Agents (Agents'99), Seattle, WA, US, May 1999.

- **16th Intl. Conf. on Machine Learning (ICML-99)**, Bled, Slovenia, June 1999.

- Eighth European Workshop on Learning Robots, Lausanne, Switzerland, Sept. 1999.

- Third European Workshop on Advanced Mobile Robots (Eurobot'99), Zurich, Switzerland, Sept. 1999.
- **European Conf. on Machine Learning (ECML-2000)**, Barcelona, May 2000.
- **14th European Conf. on Artificial Intelligence (ECAI-2000)**, Berlin, Aug. 2000.
- 6th Brazilian Symposium on Neural Networks (SBRN'2000), Rio de Janeiro, Nov. 2000.
- **17th Intl. Joint Conf. on Artificial Intelligence (IJCAI-2001)**, Seattle, Washington, Aug. 2001.
- **Intl. Conf. on Artificial Neural Networks (ICANN-2001)**, Vienna, Austria, Aug. 2001.
- 9th European Workshop on Learning Robots, Prague, Sept. 2001.
- Fourth European Workshop on Advanced Mobile Robots (Eurobot'01), Lund, Sweden, Sept. 2001.
- **IEEE Intl. Conf. on Robotics and Automation (ICRA-2002)**, Washington D.C., May 2002.
- 11th IEEE Intl. Workshop on Robot and Human Interactive Communication (ROMAN 2002), Berlin, Germany, Sept. 2002.
- International Twelfth Turkish Symposium on Artificial Intelligence and Neural Networks, Ç anakkale, Turkiye, July 2003.
- International Conference on Machine Learning and Cybernetics, Xi-an, China, Aug. 2003.
- 8th Intl. Conf. on Intelligent Autonomous Systems (IAS-8), Amsterdam, The Netherlands, March 2004.
- 8th International Work-Conference on Artificial Neural Networks (IWANN 2005), Barcelona, June 2005.
- 9th Intl. Conf. on Intelligent Autonomous Systems (IAS-9), Tokyo, Japan, March 2006.
- **21st Nat. Conf. on Artificial Intelligence (AAAI-06)**, Boston, USA, July 2006.
- 5th Intl. Conf. on Unconventional Computation (UC'06), York, Sept. 2006.
- 9th Intl. Work-Conference on Artificial Neural Networks (IWANN'2007), San Sebastián, June 2007.
- 6th Intl. Conf. on Unconventional Computation (UC'07), Kingston, Canada, Aug. 2007.
- 6th Intl. Workshop on Self-Organizing Maps (WSOM 2007), Bielefeld, Germany, Sept. 2007.
- Intl. Conf. on Cognitive Systems (CogSys 2008), Karlsruhe, Germany, April 2008.
- 7th Intl. Conf. on Unconventional Computation (UC'08), Vienna, Austria, Aug. 2008.
- **IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS 2008)**, Nice, France, Sept. 2008.
- 40th Intl. Symp. on Robotics (ISR 2009), Barcelona, March 2009.

- 10th Intl. Work-Conference on Artificial Neural Networks (IWANN-2009), Salamanca, June 2009.
- 7th Intl. Workshop on Self-Organizing Maps (WSOM 2009), St Augustine, Florida, June 2009.
- **14th Intl. Conf. on Advanced Robotics (ICAR'09)**, Munich, Germany, June 2009.
- **IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS 2009)**, St. Louis, USA, Oct. 2009.
- XII Congrés Català d'Intel.ligència Artificial (CCIA'09), Cardona, Oct. 2009.
- 13th Conf. of the Spanish Assoc. for AI (CAEPIA 2009), Sevilla, Spain, Nov. 2009.
- 1st Intl. Conf. on Applied Bionics and Biomechanics (ICABB-2010), Venecia, Italia, Oct. 2010.
- XIII Congrés Català d'Intel.ligència Artificial (CCIA'10), L'Espluga de Francolí, Oct. 2010.
- 8th Intl. Workshop on Self-Organizing Maps (WSOM 2011), Espoo, Finland, June 2011.
- 11th International Work-Conference on Artificial Neural Networks (IWANN 2011), Torremolinos, June 2011.
- XIV Congrés Català d'Intel.ligència Artificial (CCIA'11), Lleida, Oct. 2011.
- 14th Conf. of the Spanish Assoc. for AI (CAEPIA 2011), Tenerife, Nov. 2011.
- IX Latin American Robotics Symposium (LARS 2012), Fortaleza, Ceará, Brazil, Oct. 2012.
- XV Congrés Català d'Intel.ligència Artificial (CCIA'12), Alacant, Oct. 2012.
- 12th Intl. Work-Conference on Artificial Neural Networks (IWANN-2013), Tenerife, June 2013.
- XVI Congrés Català d'Intel.ligència Artificial (CCIA'13), Vic, Oct. 2013.
- XVII Congrés Català d'Intel.ligència Artificial (CCIA'14), Barcelona, Oct. 2014.
- 13th Intl. Work-Conference on Artificial Neural Networks (IWANN-2015), Palma de Mallorca, June 2015.
- **Robotics Science and Systems (RSS-2015)**, Roma, July 2015.
- IROS Workshop on "Machine Learning in Planning and Control of Robot Motion", Hamburg, Sept. 2015.
- XVIII Congrés Català d'Intel.ligència Artificial (CCIA'15), Valencia, Oct. 2015.
- **Intl. Joint Conf. on Artificial Intelligence (IJCAI'16)**, New York, July 2016.
- XIX Congrés Català d'Intel.ligència Artificial (CCIA'16), Barcelona, Oct. 2016.
- **Robotics Science and Systems (RSS-2017)**, Cambridge, Massachusetts, July 2017.

- XX Congrés Català d'Intel.ligència Artificial (CCIA'17), Deltebre, Oct. 2017.
- 3rd Iberian Robotics Conference (ROBOT'17), Sevilla, Nov. 2017.
- XXI Congrés Català d'Intel.ligència Artificial (CCIA'18), Roses, Oct. 2018.
- **International Symposium on Experimental Robotics (ISER 2018)**, Buenos Aires, Argentina, Nov. 2018.
- First Do Good Robotics Symposium, Maryland, Oct. 2019.
- XXII Congrés Català d'Intel.ligència Artificial (CCIA'19), Colònia de St. Jordi, Mallorca, Oct. 2019.
- 4th Iberian Robotics Conference (ROBOT'19), Porto, Portugal, Nov. 2019.
- IEEE International Conference on Autonomous Robot Systems and Competitions (ICARSC), Santa Maria da Feira, Portugal, April 2021.
- XXIII Congrés Català d'Intel.ligència Artificial (CCIA'21), Lleida, Oct. 2021.
- **20th International Conference on Advanced Robotics (ICAR'21)**, Ljubljana, Slovenia, Dec. 2021.
- XXIV Congrés Català d'Intel.ligència Artificial (CCIA'22), Sitges, Oct. 2022.

8.5 Other organization duties

- 1st IFAC Symposium on Robot Control (SYROCO), Barcelona, Spain, Nov. 1985. Organizing Committee member.
- NATO Workshop on Structural and Syntactic Pattern Recognition, Sitges, Spain, Oct. 1986. Organizing Committee member.
- European Conf. on Artificial Life (ECAL'95), Granada, June 1995. Organizing Committee member.
- Intl. Conf. on Pattern Recognition (ICPR'00), Barcelona, Sept. 2000. Organizing Committee member.
- Secretary of the course "HAL 9000: realidades y utopías de la Inteligencia Artificial", organized by R. López de Mántaras, Universidad Internacional Menéndez Pelayo, Valencia, Oct. 2001.
- 4th Intl. Conf. on Unconventional Computation (UC'05), Sevilla, Oct. 2005. Steering Committee member.
- 5th Intl. Conf. on Unconventional Computation (UC'06), York, Sept. 2006. Steering Committee member.
- Jornadas Nacionales de Robótica, Barcelona, May 2007. Organizing Committee member.
- 6th Intl. Conf. on Unconventional Computation (UC'07), Kingston, Canada, Aug. 2007. Steering Committee member.

- Intl. Joint Conf. on Neural Networks (IJCNN 2008), Hong Kong, June 2008. Technical Committee member.

- 7th Intl. Conf. on Unconventional Computation (UC'08), Vienna, Austria, Aug. 2008. Steering Committee member.

- 8th Intl. Conf. on Unconventional Computation (UC'09), Ponta Delgada, Portugal, Sept. 2009. Steering Committee member.

- 2nd Intl. Conf. on Ethics and Values in Engineering (ICEHVE'10), Barcelona, March 2010, CSIC representative in the Sponsoring Committee.

- 9th Intl. Conf. on Unconventional Computation (UC'10), Tokyo, Japan, June 2010. Steering Committee member.

- 10th Intl. Conf. on Unconventional Computation (UC'11), Turku, Finland, June 2011. Steering Committee member.

- 11th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2012), Orléans, France, Sept. 2012. Steering Committee member.

- 12th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2013), Milano, Italia, July 2013. Steering Committee member.

- 13th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2014), Ontario, Canada, July 2014. Steering Committee member.

- 14th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2015), Auckland, New Zealand, August 2015. Steering Committee member.

- 15th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2016), Manchester, July 2016. Steering Committee member.

- 16th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2017), Fayetteville, Arkansas, June 2017. Steering Committee member.

- Best Service Robotics Paper Award Committee at ICRA'18, Brisbane, Australia, May 2018.

- IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS 2018), Madrid, Oct. 2018. National Advisory Committee member.

- Workshop "Fr-WS5: Robots for Assisted Living" at IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS 2018), Madrid, Oct. 2018. Co-organizer together with S. Calinon, S. Dogramadzi, T. Shibata and Y. Demiris.

- Forum "Robotics meets the humanities: Social relationship, Ethics, Art and Science Fiction" at IEEE/RSJ Intl. Conf. on Intelligent RObots and Systems (IROS 2018), Madrid, Oct. 2018. Co-organizer together with Y. Nakamura and G. Sandini.

- 17th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2018), Fontainebleau, France, June 2018. Steering Committee member.

- 18th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC'2019), Tokyo, Japan, June 2019. Steering Committee member.

- Workshop “Learning for Caregiving Robots”, IEEE Intl. Conf. on Robotics and Automation (ICRA’21), May 2021. Co-organizer.
- Workshop “Representing and Manipulating Deformable Objects”, IEEE Intl. Conf. on Robotics and Automation (ICRA’21), May 2021. Co-organizer.
- 19th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC’2021), Espoo, Finland, Oct. 2021. Steering Committee member.
- 20th Intl. Conf. on Unconventional Computation and Natural Computation (UCNC’2023), Jacksonville, Florida, USA, March 2023. Steering Committee member.

9 Invited lectures

9.1 Plenary/Keynote lectures at conferences

- “Motion planning and control: Symbolic and neural levels of computation”. **3rd. COGNITIVA Conference**, Madrid, Nov. 1990.
- “Neural Networks for Robot Control”. **11th European Conference on Artificial Intelligence (ECAI’94)**, Amsterdam, Aug. 1994.
- “Neural approaches to robot control: Four representative applications”. *3rd Intl. Workshop on Artificial Neural Networks (IWANN’95)*, Málaga, June 1995.
- “Robot Neurocontrol: An Overview”. **Intl. Conf. on Artificial Neural Networks (ICANN’95)**, Paris, Oct. 1995.
- “Neuroadaptive robots”. **Intl. Conf. on Pattern Recognition (ICPR-2000)**, Barcelona, Sept. 2000.
- “Natural Inspiration for Artificial Adaptivity: Some Neurocomputing Experiences in Robotics”. *4th Intl. Workshop on Unconventional Computation (UC’05)*, Sevilla, Oct. 2005.
- “Being human in the robot age”. **Science Forum at IEEE Intl. Conf. on Robotics and Automation (ICRA’13)**, Karlsruhe, May 2013.
- “From the Turing test to science fiction: The challenges of social robotics”. *16th Intl. Conf. of the Catalan Assoc. for AI (CCIA’13)*, Vic, Oct. 2013.
- “Service robots for citizens of the future”. **26th Annual Conf. of the Academia Europaea**, Barcelona, July 2014.
- “Clothing assistants: Challenges for robot learning”. **IEEE Intl. Conf. on Robotics and Automation (ICRA’15)**, Seattle, July 2015.
- “Confluence of science and fiction in current robotics” (in Catalan). *Intl. Conf. on Science and Fiction*, Barcelona, Sept. 2015.
- “Robotic assistants: research challenges, ethics, and the role of fiction”. **2nd Intl. Conf. on Social Robots in Therapy and Education (NewFriends’16)**, Barcelona, Nov. 2016.

- "Robotic Dressing Assistants: Research, Ethics and Fiction". **14th Intl. Conf. on Informatics in Control (ICINCO'17)**, Madrid, July 2017.
- "Robotic meets the humanities: Some initiatives for ethics education and dissemination". **GUNi Intl. Conf. on Humanities and Higher Education,** Barcelona, July 2018.
- "Challenges in Cloth Manipulation by Robots". **Workshop on Computational Topology in Image Context (CTIC'19)**, Málaga, Jan. 2019.
- "Anticipatory Science-Fiction to Foster Ethical Debates on AI and Robotics". **Intl. Symposium "Anticipation and Anticipatory Systems: Humans Meet AI"**, Örebro, Sweden, June 2019.
- "Research Challenges in Cloth Manipulation by Robots". *XVIII Encuentros de Geometría Computacional*, Universitat de Girona, July 2019.
- "Manipulation Challenges in Assistive Robotics: Research and Ethics". **IEEE-RAS Intl. Conf. on Humanoid Robots (HUMANOIDS'19)**, Toronto, Canada, Oct. 2019.
- "Cloth manipulation in assistive robotics: Research challenges, ethics and fiction". *Women in Geometry and Topology Workshop*, Bellaterra, Nov. 2019.
- "Assistive AI: Research Challenges, Ethics and Science Fiction". **24th European Conference on Artificial Intelligence (ECAI'20)**, Santiago de Compostela, Online, Sept. 2020.
- "Assistive Robotics: AI Challenges and Ethics Education Initiatives". **16th Intl. Conf. on Parallel Problem Solving from Nature (PPSN'20)**, Leiden, Holanda, Hybrid, Sept. 2020.
- "Assistive Robotics: AI Challenges and Ethics Education based on Science Fiction". **52nd Intl. Symposium on Robotics**, Munich, Online, Dec. 2020.
- "Social Robotics: Research, Ethics and Education". **What future for European Robotics? A Science for Policy Conference**, Online, European Commission, Jan. 2021.
- "Assistive Robotics: AI Challenges, Ethics Education and Science Fiction". **IEEE Latin American Robotics Symposium (LARS 2021)**, Brasil, Online, Oct. 2021
- "Robótica asistencial: Retos científicos y éticos". **LXVII Congreso Nacional de la Sociedad Española de Reumatología (SER 2021)**, Palma de Mallorca, Oct. 2021.
- "Robotics, Artificial Intelligence, Education in Techno-ethics and Science fiction". **Workshop on "Ambivalent imaginaries of the future: Ustopias in speculative and science fiction",** Universitat Pompeu Fabra, Nov. 2021.

9.2 Invited talks

- "Visión por Computador". *Jornada sobre Fabricación Integrada por Computador*, METROMATICA'85, Zaragoza, Dec. 1985.
- "La investigación en robótica en el Instituto de Cibernética: Visión y planificación". *Jornadas*

Hispano-Francesas sobre Comunicación: "Nuevas tecnologías, nueva cultura", Instituto Francés, Barcelona, Nov. 1985.

- "Automatic Planning of Assembly Robot Tasks". *2émes Journées INRIA - Universitat Politècnica de Catalunya sur Informatique et Robotique*, Saint-Maló, France, Nov. 1986.

- "Modelos de neuronas osciladoras y de sus interacciones sinápticas". *2o Congreso de la Sociedad Española de Neurociencia (SEN)*, Barcelona, July 1987.

- "Sensorimotor integration in robots". **3rd Int. Workshop on "Visuomotor Coordination: Experiments, Comparisons, Models, and Robots"**, Kassel, Alemania, Aug. 1987.

- "Exploring three possibilities in network design: Spontaneous node activity, node plasticity and temporal coding". **NATO Advanced Research Workshop on "Neural Computers"**, Düsseldorf, Alemania, Sept./Oct. 1987.

- "Neural Learning Algorithms and their Applications in Robotics". **NATO Advanced Research Workshop on "Self-Organization, Learning and Emergent Properties"**, Austin, Texas, March 1990.

- "Neuronal Oscillators: Experiments and Models". *XI Sitges Conference*, Sitges, June 1990.

- "Redes Neuronales". *Seminario "La Inteligencia Artificial en el Umbral del Siglo XXI"*, Universidad Internacional Menéndez Pelayo, Santander, June 1990.

- "Aplicaciones de redes neuronales en Ingeniería". *Reunión Nacional sobre Redes Neurales (RNsRN)*, Miraflores de la Sierra, Madrid, Sept. 1991.

- "Neural learning approaches to robot control". **First IFIP Workshop of the Working Group 10.6 on Neural Computer Systems**, Grenoble, Francia, March 1992.

- "Adaptivity". **NATO ASI "The Biology and Technology of Intelligent Autonomous Agents"**, Trento, Italia, Feb. 1993

- "Motion in Contact". **PROMotion School on "Robot Motion Planning"**, Rodez, Francia, April 1993.

- "Aplicaciones de las Redes Neuronales Artificiales en Robótica". *Curso de "Redes Neuronais Naturais e Artificiais"*, Universidade de Santiago de Compostela, July 1993.

- "On Finding the Set of Inverse Kinematic Solutions for Redundant Manipulators". **Workshop on "Computational Kinematics"**, Dagstuhl, Alemania, Oct. 1993.

- "An Introduction to Neural Networks". *Course CIMPA on "Parallel Computing"*, Temuco, Chile, Jan. 1994.

- "Neural Learning Approaches to Robot Control". *Tutorial in the Technology Transfer Workshop on Industrial Vision, Advanced Robots and Medical Imaging (IVAR'94)*, Leuven, June 1994.

- "Detección de colisiones en 3D". *6 Encuentros de Geometría Computacional (6EGC)*, Barcelona, July 1995.

- "3D Collision Detection: A Survey". **3rd PROMotion Workshop**, Roma, July 1995.
- "Enfoques alternativos de la cinemática inversa de robots: Razonamiento geométrico y redes neuronales". *Course "Cinemática Computacional: Informática y Matemáticas para el Posicionamiento de Robots"*, organized by T. Recio, Cursos de Verano de la Universidad Complutense de Madrid, El Escorial, Aug. 1995.
- "Robot Neurocontrol: An Overview and Four Industrial Prototypes". **Informatik Kolloquium**, Fakultät für Informatik, Universität Ulm, Jan. 1996.
- "Aprenentatge neuronal per al control de robots". *Cicle de Conferències de l'Associació Catalana d'Intel.ligència Artificial (ACIA)*, Facultat de Ciències, Universitat Autònoma de Barcelona, Bellaterra, March 1996.
- "Aplicaciones de las redes neuronales artificiales en robótica". **Celebration of the 3rd anniversary of the inauguration of the E.T.S. de Ingeniería Informática**, Universidad de Granada, May 1997.
- "Aplicaciones de redes neuronales en robótica y visión artificial". Facultad de Ingeniería, Universidad de Santiago de Chile, Nov. 1997.
- "Control de robots mitjançant xarxes neuronals". Societat Catalana de Tecnologia, *Institut d'Estudis Catalans*, Feb. 1999.
- "Robòtica". Course "Inteligencia Artificial", *Museu de la Ciència de Barcelona*, May 2001.
- "Robots con neuronas". *XI Scientific Dissemination Conference*, Centro Cultural Caja de Burgos, Burgos, Nov. 2001.
- "A brach-and-prune algorithm for solving systems of distance constraints". *AI Problem Solving Seminar*, Universitat Pompeu Fabra, Barcelona, May 2003.
- "Natural inspiration for artificial adaptivity in robots". **Seminar Series of the Max-Planck-Institut fur Dynamik und Selbstorganisation**, Bernstein Center for Computational Neuroscience, Gottingen, June 2006.
- "Robot Learning. PACO-PLUS project". *Robot Learning Seminar*, UPC, Oct. 2009.
- "The Brain Theory roots of Cognitive Robotics". **Symposium on Multidisciplinary Approaches to Understanding Mind and Brain**, Celebration of Michael Arbib's 70th birthday, University of Arizona, Tucson, May 2010.
- "Service robots for citizens of the future". **Smart City Expo World Congress**, Fira de Barcelona, Nov. 2012.
- "Current Challenges in Robotics Research". **Opening Ceremony of the Catalan Society for Mathematics (SCM)**, Institut d'Estudis Catalans, Nov. 2012.
- "From industrial robots to social robots: An interdisciplinary challenge". **Graduation Ceremony CFIS-UPC**, Science Museum (CosmoCaixa), Dec. 2012.
- "Robot manipulation in human environments: Challenges for learning algorithms". **Dagstuhl Seminar "Robots Learning from Experiences"**, Dagstuhl, Germany, Feb. 2014.
- "Learning algorithms for robot manipulation of clothing and plant leaves". **ICRA Workshop**

on "Advances in Robot Manipulation of Clothes and Flexible Objects", Hong-Kong, June 2014.

- "Teaching Robots to help Humans with Clothing". **Texas A&M Robotics Symposium**, College Station, Jan. 2015.

- "UU: teaching robots to Understand situations and reason about Uncertainties". **AAAI NSF Sponsored Workshop: Research Issues at the Boundary of AI and Robotics**, Austin, Texas, Jan. 2015.

- "Uncertainty, Usability and Understanding: U-turns of Robotic-AI". **Robotics in the 21st century: Challenges and Promises**, Uslar, Germany, Sept. 2016.

- "Robotic assistants: AI, ethics & science fiction". **ERC Conf. Frontier Research and Artificial Intelligence,** Brussels, Oct. 2018.

- "Assistive Robotics: Research and Ethics". *25th Healthcare Industry Meeting: Working for a healthy society*, IESE, Barcelona, Nov. 2018.

- "Social Robots: Research Challenges and Ethical Issues". **Ada Lovelace Distinguished Lecture Series**, Leiden University, Holland, Nov. 2018.

- "May robots substitute accountants and auditors? How a technical issue becomes an ethical matter". Intermediate Members Meeting of the *Intl. Association of Independent Accounting Firms (INAA Group)*, Barcelona, May 2019.

- "Assistive AI: Ethics Education Initiatives based on Science Fiction". **Global Forum on AI for Humanity (GFAIH)**, Paris, Oct. 2019.

- "Changing Relationship between Artificial Intelligence and Humans". **UNESCO**, Paris, Dec. 2019.

- "Manipulació de tèxtils en robòtica assistencial: Reptes tecnocientífics i ètics". *Treball de torn, Real Acadèmia de Ciències i Arts de Barcelona*, Jan. 2020.

- "Robótica asistencial: Matemáticas, ética y formación". Jornada sobre Matemáticas en los nuevos avances en Robótica, *Fundación Areces – Real Sociedad Matemática Española*, Madrid, Feb. 2020.

- "Pros y Contras de la Inteligencia Artificial". *Deep Tech y ética, Secpho*, Online, July 2020.

- "Robòtica, intel·ligència artificial, educació en tecno-ètica i ciència-ficció". *IV Congreso Internacional "Ucronías, utopías, distopías: pasados alternativos, presentes paralelos, futuros imaginarios"*, Universidad de Varsovia, Polonia, April 2021.

- "Robótica, Ética y Literatura: una actividad transversal en Secundaria". *EduCaixaTalks STEAM*, CosmoCaixa, June 2021.

- "Assistive robotics: AI challenges, ethics and dreams". **Munich AI Summit at Automatica**, Online, June 2021.

- "Robòtica, ètica i literatura: una confluència engrescadora". *Inauguració del curs acadèmic 2021-2022*, Facultat de Filosofia, Universitat Autònoma de Barcelona (UAB), Oct. 2021.

- "Writing Science Fiction as An Inspiration for AI Research and Ethics Dissemination". **Advanced Course on AI (ACAI 2021)**, Berlin, Germany, Oct. 2021.

- "Ciència-ficció: pensament crític i debat ètic". *BarcelonaPensa – "Ciència-ficció i pensament crític en adolescents i joves"*, Auditori del Pati Manning, Nov. 2021.

- "Robòtica assistencial: Ayuda a personas con discapacidad cognitiva o física". *VI Workshop on Pensions and Insurance*, Facultat d'Economia i Empresa, Universitat de Barcelona, Nov. 2021.

- "Robòtica assistencial: recerca, ètica i ciència-ficció". *Societat Catalana de Tecnologia*, Institut d'Estudis Catalans, Nov. 2021.

- "Robòtica assistencial: recerca, ètica i ciència-ficció". *Acte de Graduació del Curs Acadèmic 2020-2021 de la Facultat d'Òptica i Optometria de la UPC*, Auditori Municipal de Terrassa, Feb. 2022.

- "Quin robot vols tenir quan siguis gran?". *TEDxEixample*, March 2022.

- "Robòtica assistencial: Ajuda a personas amb discapacitat cognitiva o física". *Setmana del Cervell, Universitat Pompeu Fabra*, March 2022.

- "Robòtica intel·ligent i social". *V Fòrum de Talent de l'Enginyeria Biomèdica (FTEB)*, Escola d'Enginyeria de Barcelona Est (EEBE) la UPC, April 2022.

- "Robòtica assistencial: Ajuda a personas amb discapacitat cognitiva o física". *3ª Edició 24h d'Innovació Barcelona*, Departament d'Educació, Generalitat de Catalunya, April 2022.

- "Robòtica assistencial: Ayuda a personas con discapacidad cognitiva o física". *Jornada "Soledad no deseada en la era digital"*, Fundació Grífols y Fundación Mémora, CosmoCaixa, May 2022.

- "Robot learning in assistive contexts poses both computing and ethics challenges". **ACM Europe Summer School on HPC Computer Architectures for AI and Dedicated Applications**, Barcelona Supercomputing Center (BSC), Sept. 2022.

- "Robòtica intel·ligent i social: Ajuda a persones amb discapacitat cognitiva o física". Inauguració del curs 2022-23, Grau d'Enginyeria Biomèdica, Paraninf de la Facultat de Medicina, Universitat de Barcelona, Sept. 2022.

- "Robots de ayuda a personas con limitaciones físicas o cognitivas". *Jornada "Avances en patología neuromuscular en la infancia", Hospital Universitari Sant Joan de Déu*, Sept. 2022.

- "Robots de ayuda a personas con limitaciones físicas o cognitivas". *XPatient Congress, Fundació Hospital Clínic de Barcelona (FHCB)*, Sept. 2022.

- "Assistive Robotics at IRI: help people with cognitive or physical disabilities". *DLR-RM / IRI Joint Seminar*. Online. Oct. 2022.

- "Persones modelades per la tecnologia?". *Jornada sobre "Robòtica assistencial",* Autoritat de Protecció de Dades (APDCat), Generalitat de Catalunya, Oct. 2022.

- "Doctoral studies: some tips to perform deep, impactful & ethical research". *Welcome*

Ceremony for PhD students 2022-2023 academic year, Technical University of Catalonia – BarcelonaTech, Nov. 2022.

- "Assistents robòtics intel·ligents: Una mirada des de l'ètica". *Curs "Ens salvarà la tecnología? Impactes socials i personals del context tecnològic"*, Centre d'Estudis Cristianisme i Justícia (CiJ), Dec. 2022.

- "Robòtica, ètica i literatura: una confluència engrescadora". *Taller Transversal d'Humanitats "Intel·ligència Artificial i Ètica"*, Universitat Internacional de Catalunya (UIC), Jan. 2023.

10 Theses advised

10.1 PhD Theses

- Joan Ilari i Valentí: *"Study of new heuristics to compute collision-free paths of rigid bodies in a 2D universe"*. Universitat Politècnica de Catalunya, April 1987.
- Federico Thomas Arroyo: *"Planificación de tareas de ensamblado basada en análisis de restricciones"*. Universitat Politècnica de Catalunya, July 1988.
- José del Rocío Millán Ruiz: *"A reinforcement learning connectionist approach to robot path finding"*. Universitat Politècnica de Catalunya, Oct. 1992.
- Enric Celaya Llover: *"Geometric reasoning for the determination of the position of objects linked by spatial relationships"*. Universitat Politècnica de Catalunya, Oct. 1992.
- Vicente Ruiz de Angulo García: *"Interferencia catastrófica en redes neuronales: Soluciones y relación con otros problemas del conexionismo"*. Euskal Herriko Unibertsitatea - Universidad del Pais Vasco, Jan. 1996.
- Robert Griñó Cubero: *"Contribución a la identificación de sistemas dinámicos mediante métodos conexionistas"* (co-advised by Dra. Gabriela Cembrano). Universitat Politècnica de Catalunya, Oct. 1997.
- Pau Bofill Soliguer: *"Xarxes neuronals per a la generació de dissenys en blocs"*. Universitat Politècnica de Catalunya, Nov. 1997.
- Pablo Jiménez Schlegl: *"Static and dynamic interference detection between polyhedra"*. Universitat Politècnica de Catalunya, Sept. 1998.
- Elisa Martínez Marroquín: *"Recovery of 3D structure and motion from the deformation of an active contour in a sequence of monocular images"*. Universitat Ramon Llull, Oct. 2000.
- Eduardo Todt: *"Visual landmark detection for navigation in outdoor environments"*. Universitat Politècnica de Catalunya, July 2005.
- Guillem Alenyà Ribas: *"Estimació del moviment de robots mitjançant contorns actius"*. Universitat Politècnica de Catalunya, Oct. 2007.
- Leonel Rozo: *"Robot learning from demonstration of force-based manipulation tasks"* (co-advised by Dr. Pablo Jiménez). Universitat Politècnica de Catalunya, June 2013.

- Stefan Ulbrich: *"Sensorimotor learning for an artificial body schema on humanoid robots"* (co-advised by Prof. Dr.-Ing. Rüdiger Dillmann). Karlsruher Instituts für Technologie, Feb. 2014.
- Edgar Simó Serra: *"Understanding Human-Centric Images: From Geometry to Fashion"* (co-advised by Dr. Francesc Moreno-Noguer). Universitat Politècnica de Catalunya, June 2015.
- Sergi Foix Salmerón: *"Task-oriented viewpoint planning for free-form objects"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, July 2016.
- Syed Farzad Husain: *"Perceiving Dynamic Environments: From Surface Geometry to Semantic Representation"* (co-advised by Dr. Babette Dellen). Universitat Politècnica de Catalunya, Oct. 2016.
- David Martínez Martínez: *"Learning Relational Models with Human Interaction for Planning in Robotics"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, Feb. 2017.
- Adrià Colomé Figueras: *"Bimanual robot skills: MP encoding, dimensionality reduction and reinforcement learning"*. Universitat Politècnica de Catalunya, July 2017.
- Gerard Canal Camprodon: *"Adapting robot behavior to user preferences in assistive scenarios"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, March 2020.
- Antonio Andriella: *"Personalising robot assistance for cognitive training therapy"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, Oct. 2022.
- Alejandro Suárez Hernández: *"Planning system for disassembling sequences with a recycling robotic arm"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, under development.
- Juan Antonio Delgado Guerrero: *"Learning latent structures in robotic clothing assistance"* (co-advised by Dr. Adrià Colomé Figueras). Universitat Politècnica de Catalunya, under development.
- Júlia Pareto Boada: *"(Re)Flexiones éticas para el empoderamiento humano en una era disruptiva"* (co-advised by Dr. Begoña Román Maestre). Universitat de Barcelona, under development.
- Edoardo Caldarelli: "*Learning cloth handling skills with Gaussian Processes and Model Predictive Control"* (co-advised by Dr. Adrià Colomé Figueras). Universitat Politècnica de Catalunya, under development.
- Oriol Barbany: *"Feedback models for real-time robotic cloth manipulation"* (co-advised by Dr. Adrià Colomé Figueras). Universitat Politècnica de Catalunya, under development.
- Roger Gallart: *"Assessing and improving motor function using wearables, self-supervised learning and personalization"* (co-advised by Dr. Josep M. Font Llagunes). Universitat Politècnica de Catalunya, under development.

10.2 Master Theses

- Marçal Garolera Huguet: *"Study of singularities of a family of parallel manipulators"* (co-advised by Dr. Maria Alberich-Carramiñana). E.T.S. Ingeniería de Telecomunicaciones de Barcelona, Universitat Politècnica de Catalunya, June 2007.

- Adrià Colomé Figueras: *"Anàlisi de l'espai de treball i de la manipulabilitat d'un robot redundant"*. Universitat Politècnica de Catalunya, Sept. 2011.

- Pol Monsó Purtí: *"POMDP approach to robotic sorting and manipulation of deformable objects"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, Sept. 2011.

- Alejandro Suárez Hernández: *"Towards effective planning strategies for robots in recycling"* (co-advised by Dr. Guillem Alenyà). Universitat Politècnica de Catalunya, June 2018.

- Miguel Arduengo García: *"Robot Learning from Demonstration with Gaussian Processes"* (co-advised by Dr. Adrià Colomé Figueras). Universitat Politècnica de Catalunya, June 2021.

10.3 Bachelor Theses

- Antoni Planells València: *"Control d'un manipulador redundant basat en un model dinàmic obtingut per identificació"*. School of Industrial Engineering, Universitat Politècnica de Catalunya, July 2014.

- Alejandro Suárez Hernández: *"Integration of task and motion planning for robotics"* (co-advised by Dr. Guillem Alenyà). Computer Science Department, Universitat Politècnica de Catalunya, April 2016.

- Ignasi Clavera Gilaberte: *"Policy Transfer via Modularity"* (co-advised by Prof. Pieter Abbeel, University of California at Berkeley). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, June 2017.

- Enric Cosp Arqué: *"Learning tasks with bimanual robots using motion symmetries"* (co-advised by Dr. Adrià Colomé). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, July 2017.

- Oleguer Canal: *"Learning-Based Regrasp Policy From Tactile Feedback"* (co-advised by Prof. Alberto Rodríguez, MIT). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, May 2018.

- Miguel Arduengo García: *"Robust Door Operation with the Toyota Human Support Robot: Robotic Perception, Manipulation and Learning"* (co-advised by Prof. Luis Sentis, University of Texas at Austin). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, Feb. 2019.

- David Parent Alonso: *"Variable Impedance Control with Movement Primitives in Latent Spaces"* (co-advised by Dr. Adrià Colomé). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, July 2019.

- Marc Esquerrà Corominas: "*Workspace and singularity determination of a 7-DoF wrist-*

partitioned serial manipulator towards graffiti painting" (co-advised by Prof. Frank Dellaert, Georgia Tech, Atlanta). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, May 2020.

- Ce Xu Zheng: *"Gaussian Process applied to modeling the dynamics of a deformable material"* (co-advised by Dr. Adrià Colomé and Prof. Luis Sentis, University of Texas at Austin). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, Sept. 2021.
- Mireia Planas: "*Object Manipulation with High-resolution and Highly Deformable Tactile Sensors*" (co-advised by Prof. Nima Fazeli, University of Michigan). Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, May 2022.

11 Research management and evaluation

11.1 Management appointments and evaluation committees

1983-1987: *Head* of the Signals and Systems department at the Institut de Cibernètica (CSIC-UPC).

1984-1985: *Member of the Committee that started the Asociaci ón Española Para la Inteligencia Artificial (AEPIA)*, enclosed within the European Committee for the Coordination of Artificial Intelligence (ECCAI).

1985-1988: *Secretary of the Asociaci ón Española Para la Inteligencia Artificial (AEPIA).*

1989-1991: *Coordinator of the Doctoral Program* on "Advanced Automation and Robotics", Universitat Politècnica de Catalunya.

1990-1992: Vice-director of the Institut de Cibernètica (CSIC-UPC).

1993-1996: Member of the Area Committee on Physics and Physics Technologies at CSIC.

2001-2004 *Member of the Advisory Council for Research Evaluation (CASA)* of the Commis-sion for Research and Technological Innovation (CIRIT) of the Generalitat de Catalunya.

2004-2008 Member of the Area Committee on Physics and Physics Technologies at CSIC.

2006-2008 Head of the Robotics Group at the Institut de Robòtica i Informàtica Industrial (CSIC-UPC).

2006-2010 Member of the Advisory Commission for Research Quality of the Agency for Quality of the University System of Catalunya (AQU).

2009-pres. Head of the Perception and Manipulation Group at the Institut de Robòtica i Informàtica Industrial (CSIC-UPC).

2012-2013 Associate Vice-President for Publications of the Robotics and Automation Society (RAS) of IEEE.

2012-2014 Member of the Scientific Advisory Board of the Bernstein Center for Computational Neuroscience (BCCN) and the Bernstein Focus Neurotechnology (BFNT), Göttingen, Germany.

2016-2018 Elected Member of the Administration Committee (AdCom), IEEE Robotics and Automation Society (RAS).

2016-pres. *Member of IEEE-RAS Special Interest Group on Humanitarian Technologies* (SIGHT).

2016-pres. *Member of IEEE-RAS Women in Engineering Committee* (WiE).

2016-2022 Member of the Review Panel of the Swiss National Centre of Excellence (NCCR) in Robotics, Zürich and Lausanne, Switzerland.

2017-2019 Member of the Scientific and Technical Committee of the Spanish Research Agency (AEI).

2019-2022 *Member of the Scientific Committee* of the Real Sociedad Matemática Española (RSME).

2020-pres. *Member of the Board of Trustees* of the i2CAT Foundation.

2020-pres. Member of the Advisory Council on Artificial Inteligence of the Spanish Government.

2020-pres. Vice-president of CSIC's Ethics Committee.

2020-pres. *Member of UPC's Ethics Committee.*

2020-pres. *Member of the Catalan Observatory of Ethics in AI.*

2020-pres. *Member of the Advisory Committee of Fundació Episteme.*

2020-pres. *Secretary of Section 6 – Technology of the Reial Acadèmia de Ciències i Arts de Barcelona (RACAB).*

2020-pres. *Member of the IEEE-RAS Committee to Aid Reporting on Misconduct Concerns (CARES).*

2021-pres. *Member of the Valencian Graduate School Research Network on AI (ValgrAI).*

2021-pres. *Member of the Academic Committee of the Universidad Internacional Menéndez Pelayo (UIMP).*

2021-pres. *Co-coordinator of Connexión en Inteligencia Artificial of CSIC (AIHub-CSIC).*

2022-pres. Member of the Review Panel of the Italian Institute of Technology (IIT) in the area of Robotics, Genoa, Italia.

11.2 Academic Assessment Committees

1987-pres. Regular member of *PhD Committees* at UPC, and occasional member at other Spanish universities such as Cantabria, Jaume I, Euskal Herriko, Ramon Llull, among

others.

2011 *PhD Evaluation Committee* of Jeannette Bohg (Advisor: Danica Kragic), Kungliga Tekniska Högskolan (KTH), Stockholm, Sweden.

1991-pres. Regular member of *Assessment Committees* for new CSIC positions and promotion ones.

2013 *Assessment Committee* for a position of Associate Professor in Cognitive and Applied Robotics, Southern Denmark University (SDU), Odense, Denmark.

2016-2019 *Doctoral Thesis Committee* of Matev Pobernik (Advisor: Ivan Bratko), Faculty of Computer and Information Sciences, University of Ljubljana, Slovenia.

11.3 Research evaluation

Spanish Commission for Science and Technology (CICYT):

- Member of the Advisory Committee of the Spanish Research Program on Information and Communication Technologies (TIC), 1995-1999.
- Reviewer of the final outcome of projects CICYT, area TIC, several years.
- Member of the Advisory Committee of the Spanish Research Program on Industrial Design and Manufacturing (DPI), 2000-2003.
- Reviewer of the final outcome of projects CICYT, in the area of Industrial Design and Manufacturing (DPI), May 2001.

Spanish Agency of Evaluation and Prospective (ANEP):

- Evaluation of projects submitted to several calls of CICYT and Autonomic Communities.
- Member of the Committee to appoint Ramón y Cajal positions in the area of Computer Science and Computer Technology, July 2002.

Ministry of Science and Technology (MCYT), Ministry of Science, Innovation and Universities (MICIU), and *Ministry of Science and Innovation (MCIN):*

- Member of the jury for the Spanish National Research Award "Leonardo Torres Quevedo" in Engineering, Sept. 2002, Sept. 2006, and July 2019.
- Member of the jury for the Spanish National Research Award "Julio Rey Pastor" in Mathematics and Information and Communication Technologies, Nov. 2021.
- Member of the jury for the III Certamen Universitario "Arquímedes", Jan. 2006.

Spanish Scientific Association for Informatics (SCIE):

- Member of the jury for the Spanish National Informatics Award, Sept. 2010.

Spanish Association for Normalization and Certification (AENOR), Terminology Center (Term- cat):

- Advisor in the development of norm UNE-EN ISO 14539 on “Manipulation robots”.

Generality of Catalonia, Commission of Research and Technological Innovation (CIRIT):

- Evaluation report for the II Research Program of Catalonia, Nov. 2003.
- Contribution to the report “Catalonia Research and Innovation 2020”, National Agreement for Research and Innovation, May 2009.
- Collaboration with the Department of Labour in the project “ARIADNA - mentoring net”, acting as advisor of young researchers, May-Nov. 2010.
- Advisor of the Agency for Quality of the University System of Catalunya (AQU) in the area of Engineering and Architecture, 2010-2013.
- Member of the jury for the Catalan National Research Award, Dec. 2021.

City Council of Barcelona:

- Member of the jury for the “Barcelona City Award” in the area of Tecnological Research, February 2009.

Aragón Government, Dept. of Education and Science:

- Evaluation for the Research Mobility Program EUROPA XXI, Sept. 2007.

Commission of the European Communities:

- Evaluation of several project proposals submitted to the III Framework Program (Basic Research) and IV Framework Program (Long-Term Research).
- Review meetings at the CEC Headquarters to assign reviewers and integrate evaluations, Sept-Oct. 1995, Sept. 1997.
- Annual reviews for the three years of the project MUCOM II (Esprit III BRA), 1992-95.
- Participant in the brainstorm workshop “Beyond the Made and the Born” to define the call for joint projects in the areas of Computing and Neurosciences, Brussels, June 1999.
- Annual reviews of the networks of excellence NEuroNet (28103), MLNet and COIL (28103), Feb. 2000.
- Annual reviews for the three years of the project MOLOG (28226) (IV framework, LTR), 1999-2002.
- Participant in the Strategic Planning Workshop on Future and Emerging Technologies, to define the main lines of the VI Framework Program in this area, April 2001.
- Annual reviews for the three years of the project MOVIE (39250) (V framework, IST), 2004-2006.
- Evaluation of several project proposals submitted to the VI Framework Program (IST-FET Open), 2005-2006.

- 1st annual review of the project TOPOSYS (318493) (VII framework, IST), 2013.
- Annual reviews for the four years of the project SoMa (645599), (H2020, ICT), 2016-2019.

German Research Foundation (DFG):

- Review Panel of Clusters of Excellence in the area of Engineering Sciences, June 2017.

NATO Scientific Affairs Division:

- Evaluation of project proposals submitted to several calls.

European Science Foundation (ESF):

- Evaluation of workshop proposals submitted to several calls.

European Coordinated Research on Long-term Challenges in ICST (CHIST-ERA):

- Evaluation of project proposals submitted to the first call, 2011.

European Research Council (ERC):

- Evaluation of Starting Grant proposals, 2015.
- Member of Panel on Systems and Communication Engineering (PE7) of ERC Consolidator Grants 2021.
- Evaluation of Advanced Grant and Starting Grant proposals, 2022.

12 Awards

1981: *"Scientific dissemination" Award* from the Science Museum in Barcelona, for the paper "El cerebro dividido" (written together with L.J. García Larrea).

1982: Prize "Mundo Electrónico" to the best book on professional electronics, for the book "Rob´otica Industrial" (written together with G. Ferrat´e, J. Amat, J. Ayza, L. Basan˜ez, F. Ferrer and R. Huber).

1983: *Second Prize "Mundo Electr ónico"* to the best paper in this journal during the academic year 1982-83, for the paper "Sistemas de visión tridimensional en los robots industriales" (written together with J. Amat and L. Basañez).

1983: Best Master's record in Mathematics (Premio extraordinario de licenciatura con grado). Universitat de Barcelona.

1984: *Best student award* of the Institut d'Estudis Catalans, for the monograph "Correspondència 2D-1D: Aplicació al càlcul de la TFD i la convolució circular".

1985: Prize "Rafael Campalans" of the Institut d'Estudis Catalans, for the monograph "Modelització i simulació de neurones i xarxes neuronals amb capacitat d'aprenentatge de patrons temporals".

2000: Narcís Monturiol Medal to a significant scientific and technological career of the Generalitat de Catalunya.

2007: Fellow of EurAI (European Association for Artificial Intelligence).

2010: Nominated Member of Academia Europaea.

2011: *Senior Member of IEEE* (Institute of Electrical and Electronic Engineers).

2011: *Senior Member of INNS* (International Neural Networks Society).

2013: Elected Member of the Royal Academy of Sciences and Arts of Barcelona.

2015: *Best Paper Award* at the IAPR Intl. Conf. on Machine Vision Applications (MVA'15) for "Lie Algebra-Based Kinematic Prior for 3D Human Pose Tracking" by E. Simó-Serra, C. Torras and F. Moreno-Noguer (see [ic.115]).

2016: *Prize Marc Esteva to best PhD thesis*, Catalan Association for AI (ACIA), to E. Simó-Serra's thesis entitled "Understanding Human-Centric Images: From Geometry to Fashion", co-advised with Dr. F. Moreno-Noguer.

2017: *Elected Member of the Secció de Ciències i Tecnologia* of the Institut d'Estudis Catalans.

2017: ERC Advanced Grant "CLOTHILDE", European Research Council.

2018: *Nominated to the Georges Giralt Award to best European PhD Thesis* by the euRobotics Association, and *Winner of the Robotnik Prize to best Spanish PhD Thesis* in Robotics in 2017, to A. Colomé's thesis entitled "Bimanual robot skills: MP encoding, dimensionality reduction and reinforcement learning".

2019: Elevated to IEEE RAS Fellow Class of the IEEE Robotics & Automation Society.

2019: Recognition as ICT Professional of the Year, Generalitat de Catalunya and Catalan Association of ICT Professionals.

2019: *Prize to best BSc thesis*, Catalan Association for AI (ACIA), to M. Arduengo's thesis entitled "Robust Door Operation with the Toyota Human Support Robot: Robotic Perception, Manipulation and Learning", co-advised by Prof. Luis Sentis, University of Texas at Austin.

2019: IV Prize Julio Peláez to Pioneer Women in Physics, Chemistry & Mathematics, Fundación Tatiana Pérez de Guzmán el Bueno.

2019: Nominated ELLIS Fellow, European Lab for Learning & Intelligent Systems.

2020: *We Leadership Award to a Professional Career,* Women Evolution Scientific Committee.

2020: *DonaTIC (ICT Woman) Award* in the Academic-Researcher category, Generalitat de Catalunya and Barcelona Chamber of Commerce.

2020: *Prize Marc Esteva to best PhD thesis*, Catalan Association for AI (ACIA), to G. Canal's thesis entitled "Adapting robot behavior to user preferences in assistive scenarios", co-advised with Dr. G. Alenyà.

2020: Catalan National Research Award, Government of Catalonia.

2020: Spanish National Research Award "Julio Rey Pastor" in Mathematics and Information and Communication Technologies, Spanish Ministry of Science and Innovation (MCIN).

2021: *Prize to best MSc thesis*, Catalan Association for AI (ACIA), to M. Arduengo's thesis entitled "Robot Learning from Demonstration with Gaussian Processes", co-advised with Dr. A. Colomé.

2022: Robotics Professional Career Award, Industry 4.0 Committee, Professional Associations of Engineering, VIII Nit de la Robòtica.

2022: *Prize to best PhD thesis on an AI application*, AIHub-CSIC, to A. Andriella's thesis entitled "Personalising robot assistance for cognitive training therapy", co-advised with Dr. G. Alenyà.

2022: Elected Member of the Spanish Royal Academy of Engineering.

13 Activities related to promoting Ethics in Robotics and AI

13.1 Invited talks and seminars

- "Robots con neuronas". Course "HAL 9000: realidades y utopías de la inteligencia artificial", *Universidad Internacional Menéndez Pelayo (UIMP)*, Valencia, Oct. 2001.
- "L'estat actual de la recerca en robòtica". *X Trobada de Ciència-Ficció*, Mataró, March 2006.
- "Intel.ligència robòtica: Quins robots volem?". *2as Jornades de Robòtica*, Parc de Recerca Biomèdica de Barcelona (PRBB), Sept. 2007.
- "Robòtica". *Aula d'Extensió Universitària*, Arenys de Mar, March 2009.
- "Volem robots intel.ligents o que ens facin intel.ligents?". *Jornada First Lego League - Taller de Robòtica Lego*, CEIP Bogatell - IES Ítaca, Barcelona, April 2009.
- "Intel.ligència robòtica: quin tipus de robots volem?". *4as Jornades de Robòtica Open Source*, Fira de Sabadell, May 2009.
- "Volem robots intel.ligents o que ens facin intel.ligents?". *Jornades de Robòtica - II Concurs Intl. de Robòtica JET*, UPC, Campus de Terrassa, May 2009.
- Talk as CSIC's representative at the 2nd Intl. Conf. on Ethics and Values in Engineering (ICEHVE'10), March 2010.
- "Volem robots intel.ligents o que ens ajudin a ser més intel.ligents?". *Aula d'Extensió Universitària*, Sant Cugat, March/April 2010.
- "Fronteres de la Ciència: Els robots canviaran els éssers humans?", **Opening Ceremony of the Institut Català d'Antropologia**, Universitat de Barcelona, Oct. 2010.
- "La interacció amb robots... canviarà l'ésser humà?". *Aula d'Extensió Universitària*, Cerdanyola del Vallès, March 2011.
- "Robots y seres humanos", **Intl. Workshop on "The power of social classification**

systems", Universitat Autònoma de Barcelona (UAB), Nov. 2011.

- "La interacció amb robots... canviarà l'ésser humà?". *Aula d'Extensió Universitària*, Castellar del Vallès, Nov. 2011.
- "Ciència i ficció: quina inspira quina?". *CSIC Seminar Series "Inspiraciència"*, Biblioteca Sagrada Família, Jan. 2012.
- "Robots and human beings: closer ties". **080 Future Fashion Festival**, Palau de Pedralbes, Barcelona, July 2012.
- "La interacció amb robots... canviarà l'ésser humà?". *Aula d'Extensió Universitària*, Sabadell, March 2013.
- "Robots i éssers humans: els vincles s'estrenyen". *Festa (ciència + tecnologia)*, Parc de la Ciutadella, Barcelona, June 2013.
- "Robots socials: punt de trobada entre ciència i ficció". *Octubre Centre de Cultura Comtemporània*, Valencia, April 2014.
- "Robots humans". *Cafès científics*. Casa Orlandai, Barcelona, May 2014.
- "Social robots: Technology meets the Humanities". Session on New Frontiers in Informatics, **26th Annual Conf. of the Academia Europaea**, Barcelona, July 2014.
- "Robots i éssers humans: Els vincles s'estrenyen". 3r Premi Llegim Ciència. Universitat de Vic, Feb. 2015.
- "La interacció amb robots... canviarà l'ésser humà?". *Aula d'Extensió Universitària Les Corts*, Barcelona, March 2015.
- "Els reptes de la robòtica assistencial". *75th anniversary of the Spanish Scientific Research Council (CSIC)*, Residencia CSIC, Barcelona, March 2015.
- "Assistent(e)s robòtiqu(e)s: un punt de confluència entre tecnociència i humanitats". Talk Series "Inspiraciència", Library Sagrada Família, Barcelona, April 2015.
- "Robotic Assistants: Science meets Fiction". **IJARS Lecture Series**, InTech, Seattle, May 2015.
- "La interacció amb robots... ens portarà a una mutació sentimental?". *Tertúlies de Literatura Científica*, Vic, Oct. 2015.
- "La interacció amb robots... ens portarà a una mutació sentimental?". *Cicle "+Humans: ciència, tecnologia i coneixement"*, Ateneu Barcelonès, Barcelona, Jan. 2016.
- "Dilemes ètics en les novel. les, pel.lícules i sèries sobre robots". *Cursos "Els Juliols"*, Universitat de Barcelona, Jul. 2016.
- "Robotic assistants: research challenges, ethics, and the role of fiction". **2nd Intl. Conf. on Social Robots in Therapy and Education (NewFriends'16)**, Barcelona, Nov. 2016.
- "How Robot Companions will change us: Science beyond Fiction". *EuroCon'16*, Barcelona, Nov. 2016.

- "Dissenyant l'assistent perfecte: Robòtica, ètica i literatura". *Celebrating the 60th anniversary of the birth of AI*, Catalan Association for AI, Lleida, Nov. 2016.

- "Designing the Perfect Assistant: Robotic AI, Ethics and Science Fiction". **Artificial Intelligence: Dreams, Risks and Reality, B-Debate: International Center for Scientific Debate**, Barcelona, March 2017.

- "Robótica asistencial: retos tecnocientíficos y éticos". *Jornada "Robótica e Inteligencia Artificial", Fundación Areces*, Madrid, May 2017.

- "Robotic Dressing Assistants: Research, Ethics and Fiction". **14th Intl. Conf. on Informatics in Control (ICINCO'17)**, Madrid, July 2017.

- "Robots, intel·ligència artificial, i xarxes socials: la ciència atrapa la ficció?", Centre Cultural Sant Josep, Barcelona, Jan. 2018.

- "Robots, intel·ligència artificial i xarxes socials: cal un debat ètic", Facultat de Medicina, Universitat de Barcelona, Feb. 2018.

- "Ètica i Intel·ligència artificial: visions i contradiccions del futur", **Mobile Week**, Barcelona, Feb. 2018.

- "Les xarxes i els robots esdevenen socials: cal un debat ètic", *III Congrés de Sobirania Tecnològica***,** Barcelona, March 2018.

- "Estratègies de divulgació i comunicació científica en el temps de la postveritat", **CosmoCaixa**, Barcelona, March 2018.

- "TIC, robots i xarxes socials: cal un debat ètic", Premi equit@T, UOC, Espai Francesca Bonnemaison, Barcelona, April 2018.

- "Implicacions ètiques, econòmiques i socials de la robòtica", Institut d'Estudis Catalans, Barcelona, June 2018.

- "TIC, robots i xarxes socials: cal un debat ètic", *Jornada de Dinamització de la Internet Social*. Xarxa Punt TIC, Espai Bital, L'Hospitalet de Llobregat, Barcelona, Sept. 2018.

- "Intel·ligència artificial: ciència, ètica, ficció i distopies". *Lecture series: "Un espia a la butxaca. Llibertat, privacitat i noves technologies*", Casa de Cultura, Girona, Oct. 2018.

- "Robots i Ètica". *Fòrum de Debats i Festival PROTESTA*, Vic, Barcelona, Oct. 2018.

- "La influència dels robots en la nostra vida i en les relacions afectives", *Debate series: "Robots, els humans i les màquines"*, **CosmoCaixa**, Barcelona, Nov. 2018.

- "Simbiosis persona-máquina: Desafíos éticos de los ciborgs". *Congress #Robotiuris18*, Madrid, Nov. 2018.

- "Robotics meets the Humanities: Some initiatives for ethics education & dissemination". **GUNi Intl. Conf. on Humanities and Higher Education: Generating Synergies between Science, Technology and Humanities**, Barcelona, Nov. 2018.

- "Robòtica i intel·ligència artificial: Recerca, ètica i ficció", *Lecture Series: "Humanitats en*

transició", Universitat de Vic, Barcelona, Dec. 2018.

- "Enxarxats: tecnologia, ètica i ciència-ficció", *Centre Cultural La Nau*, Valencia, March 2019.
- "Roboètica", *Els Dijous Culturals de la Càtedra Dr. Bofill-UdG*, Girona, April 2019.
- "RoboTIC: entre les tendències i l'ètica", *Festibity*, Teatre Nacional de Catalunya, Barcelona, May 2019.
- "Ètica i Intel·ligència Artificial", Palau Robert, Barcelona, June 2019.
- "Science Fiction Inspiring Research & Ethics Debate", **IFRR Colloquium on Robots and Art**, Stanford, Online, Sept. 2020.
- **2019-22 talks and activities** at https://clothilde.iri.upc.edu/ - Outreach - RoboEthics.

13.2 Journal and web articles

[ij.55] Torras C.: "Robbie, the pioneer robot nanny: Science fiction helps develop ethical social opinion". **J. of Interaction Studies**, vol. 11, num. 2, pp. 269-273, July 2010.

[-] Torras C.: "Entre el test de Turing y la ciencia-ficción: El reto de los robots sociales", *blog "El Año de Turing", El País*, 13/12/2012.

[-] Torras C.: "Robots y seres humanos: Los vínculos se estrechan", *blog "El Año de Turing", El País*, 22/5/2013.

[nj.16] Torras C.: "Robots socials: un punt de trobada entre ciència i ficció". **Revista Mètode**, vol. 84, estiu 2014.

[nj.17] Torras C.: "Assistent(e)s robòtiqu(e)s: Un punt de confluència entre tecnociència i humanitats". **Quadern de les idees, les arts i les lletres**, vol. 38, num. 209, pp. 19-21, 2017.

[-] Torras C.: "Les xarxes i els robots esdevenen 'socials': cal un debat ètic", *Web Interacció*, 18/9/2017.

[-] Torras C.: "Oportunitats i perills a les xarxes socials: cal un debat ètic", *Diari ARA*, 10/5/2018.

[-] Torras C.: "La roboética: una confluencia entre las tecnociencias y las humanidades", *El Periódico de Catalunya*, 12/7/2018.

[-] Torras C.: "Robots a casa nostra: un repte tecnocientífic i ètic. Repte 9-Tecnologia. Dossier "Els 10 reptes de la Humanitat", *Diari ARA*, 29/12/2018.

[-] Torras C.: "Un amigo para el ser humano". *Revista El Cultural*, 12/1/2019.

[ij.97] Torras C.: "Social networks and robot companions: Technology, ethics and science fiction". **Metode Science Studies Journal**, 99: 47-53, 2018.

[ij.100] Torras C.: "Assistive robotics: Research challenges and ethics education

initiatives". **DILEMATA: International Journal of Applied Ethics**, 30: 63-77, 2019.

[ij.106] Torras C.: "Science fiction: A mirror for the future of humankind". **IDEES** (48): 1-11, 2020.

[bc.40] Torras C.: "La ciencia ficción como estímulo del debate ético en robótica". In "*Robótica, ética y política. El impacto de la superinteligencia en el mundo de las personas*", edited by N. Bilbeny, pp. 139-167. Icaria Editorial, 2022.

13.3 Science-fiction novels and awards

- Torras C.: *"La mutació sentimental"*. Pagès Editors: Lleida, 2008.
  X Manuel de Pedrolo Prize to a science-fiction novel, Cultural Foundation of Mataró, 2007. Ictineu Award 2009 to the best Catalan science-fiction novel published in 2008.

  This novel has been published in Spanish as *"La mutación sentimental"* (Editorial Milenio, 2012), and in English as *"The Vestigial Heart"* (MIT Press, 2018), together with online materials to teach a university course on "Ethics of Social Robotics and AI". Several universities in the US, UK and Catalunya are teaching this course. Moreover, the teaching materials have been adapted to Secondary School and are available in Catalan from the website of Pagès Editors (https://www.pageseditors.cat/ca/guia-didactica-la-mutacio-sentimental.html)

- Torras C.: *"Enxarxats"*. Editorial Males Herbes: Barcelona, 2017.
  Ictineu Award 2018 to the best Catalan science-fiction novel published in 2017.

  This novel is a disturbing story about the possibilities of Internet and the responsibilities and social implications of our constant interaction within the network.