

PERSONAL DATA

Name: Gerardo Gabriel Acosta

Date and place of born: June 11th, 1964, Gral. Roca, Río Negro, Argentina.

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ACADEMIC DATA

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CONICET Webpage:



https://www.conicet.gov.ar/new_scp/detalle.php?keywords=&id=20040&datos_academicos=yes

CURRENT SITUATION

- Principal Researcher at the National Science and Technique Research Council - CONICET since 2020.
- First Category Researcher I (one), SPU National Ministry of Education since 2011.
- Full Professor at the Eng. Faculty – Nat’l Univ. Centre of Buenos Aires Province (UNCPBA) since 2012.
- Lab Head of R+D+i INTELYMEC, Eng. Faculty – UNCPBA since 2002.
- Member of the Board of Directors of CIFICEN (UNCPBA, CICIPBA, CONICET), Center of Research in Physics and Engineering of the Centre, Centro Científico Tecnológico Tandil.
- Director of the network RIDIAAR (I+D on AI in Robotics) – UNCPBA since 2004.
- Member of the Evaluation Ad Hoc Commission for R+D Projects at Agencia Nacional de Promoción Científica y Tecnológica (Res. 2017-280-APN-DANPCYT#MCT), since May 2017.
- Associated Editor of EARTHZINE (earthzine.org) from IEEE since 2015.
- Member of the Executive Committee of the Oceanic Engineering Society OES – IEEE as Vicepresident for Workshops & Simposia.
- Member of the Autonomous Marine Systems Committee (AMS) – OES – IEEE since 2017.
- OES – IEEE Argentinean Chapter Chair.
- Control Systems (CS – IEEE) member.
- Principal Researcher in charge of more than 25 R+D+i projects funded by the Argentinean Government, the Spanish Government, the European Union and the United States of America.
- Author of more than 220 publications in indexed scientific journals, book chapters, national and international conferences and symposia, and technical reports.
- *h-index*: Scopus=22; Google Scholar=26
- Owner of 3 intellectual property registries: 2 Spanish ones transferred to the Scottish enterprise SeaByte Ltd. And 1 Argentinean, patent pending.
- Senior Consultant of several enterprises: Novathena Inc., SeeByte Ltd., Lumilagro, Maper SRL, Tecnoap, Cementos Avellaneda S.A., REDIMEC S.A., Municipio de Olavarría, Y-TEC S.A., Ferrosur S.A., Fanit S.A., Cooperativas textiles prov. Bs. As.

BIO SKETCH

Gerardo Acosta graduated as an Electronic Engineer from the National University of La Plata – UNLP, Argentina (1988) and a PhD in Computer Sciences from the University of Valladolid – UVA, Spain (1995). He is a Full Professor at UNCPBA and Principal Researcher at CONICET, both in Argentina. He has also been several times visiting and contracted Professor/Researcher at UNLP, UVA, INESC TEC Portugal, and Universitat de les Illes Balears – UIB, Spain, where he participated in the AUTOTRACKER Project (European FP5 - GDR1-2000-25150/ G3RD-CT2000-00265). Also, at UIB, he did postdoctoral studies through an MSC IIF Action, the AUVI Project (European FP6 MIF1/2-CT-2004-003027). He is the Director of the INTELYMEC Group at UNCPBA. He has been a member of the boards of directors of the Centro de Investigaciones en Física e Ingeniería del Centro – CIFICEN (UNCPBA – CICPBA – CONICET), (2014-2022) and 2024 until now. He was also professor member of the Academic Council of the Engineering Faculty of UNCPBA from 2017 to 2022. He was the director of the doctoral program at the Engineering Faculty of UNCPBA for twelve years since its creation in 2009. He was in charge of several Postgraduate Courses in control and artificial intelligence in the Doctorate Program of UNCPBA, UNLP, UVA and UIB. He formed eight postgraduate students (4 PhD and 4 Mg), six postdoc students, and nine initial researchers (3 CICPBA and 6 CONICET). His working area comprises the use of artificial intelligence in automatic control. During the early stage of his career, he proposed a fuzzy expert system approach to self-tuning PID controllers and the use of artificial neural networks for nonlinear dynamic system identification and control (1992-1993). Then, he made outstanding contributions to fault diagnosis and monitoring of dynamic processes, applying these ideas to a sugar production plant. Later on, his main contributions were applying intelligent control to solve engineering problems, particularly in robotics, mainly terrestrial and aquatic autonomous mobile robots and smart factories. He also contributed to leveraging neuroscience ideas to solve robotic and control problems in a bioinspired way. He authored more than 220 publications and 3 intellectual property registries within this and related areas. He has been awarded several times, like the first National Award in Innovation in Robotics for the Autonomous Underwater Vehicle ICTIOBOT in 2012 (Argentina). He has been invited as a reviewer of many prestigious indexed journals, as a member and president of many national and international conferences and symposia, and as a reviewer of R+D projects in Argentina, Uruguay, Chile, Perú, European Science Foundation, Université Bourgogne (France), Universidad de Girona (Spain). In the IEEE, he has been Senior Member since 2001 and a founder member of the Argentinean Chapters of CIS and OES, being Chair of them in several opportunities. He received the Outstanding Chapter Award from CIS in 2010 while Chapter Chair.

MAIN S&T CONTRIBUTIONS

1. “Basic Tasks for Knowledge Based Supervision in Process Control”, G.G. Acosta, C. Alonso, and B. Pulido, Eng. App. of Artificial Intelligence, Vol. 14, N° 4, Elsevier Science Ltd/IFAC, August 2001, pp. 441-455. (ISSN 0952-1976).
2. “Genetic Algorithms and Fuzzy Control: a practical synergism for industrial applications”, G. G. Acosta and E. Todorovich, Computers in Industry, Elsevier Science, Vol 52/2 pp 183-195, (ISSN 0166-3615), October 2003.
3. “A Current Monitoring System for Diagnosing Electrical Failures in Induction Motors”, G. G. Acosta, C. J. Verucchi, E. Gelso, Mechanical Systems and Signal Processing, Elsevier, Volumen: 20, Issue 4, May 2006, pp. 953-965. (ISSN 0888-3270).
4. “Behavioral control through evolutionary neurocontrollers for autonomous mobile robot navigation”, J. A. Fernández León, G. G. Acosta, and M. A. Mayosky, Journal of Robotics & Autonomous Systems, Elsevier, Vol. 57, Issue 4, 30 April 2009, pp. 411 – 419, ISSN: 0921-8890. (Top ten hottest referenced of RAS Journal in May 2011).

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5. “Some Issues on the Design of a Low-Cost Autonomous Underwater Vehicle with an Intelligent Dynamic Mission Planner for Pipeline and Cable Tracking”, G. G. Acosta, H. Curti, O. Calvo Ibáñez, and S. Rossi, Chapter I in Underwater Vehicles, pp. 1-18 InTech Open Books, Robotics Series, I-Tech Education and Publishing KG, Viena, Austria, Editor: A. Inzartsev, 2009, <Open Access: <http://books.i-techonline.com/>> . (ISBN 978-953-7619-49-7)
6. “Accumulated CA-CFAR Process in Two Dimensions for on-line Object Detection from Side Scan Sonar Data”, G. G. Acosta and S. A. Villar, IEEE Journal of Oceanic Engineering, available on-line (28-7-2014), Vol. 40, Nº 3, July 2015, pp. 558–69, ISSN 0364-9059.
7. “Double Q-PID algorithm for mobile robot control”, Ignacio Carlucho, M. De Paula and G. G. Acosta, Expert Systems with Applications Journal, vol. 137, pp. 292-307, 2019, Ed. Elsevier - ISSN: 0957-4174.
8. “An adaptive deep reinforcement learning approach for MIMO PID control of mobile robots”, Ignacio Carlucho, M. De Paula, G.G. Acosta, ISA Transactions, Ed. Elsevier, Vol. 102, July 2020, pp. 280-294, ISSN: 0019-0578, <https://doi.org/10.1016/j.isatra.2020.02.017>.
9. “ECOPAMPA: a new tool for Automatic Fish Schools Detection and Assessment from Echo Data”, S. A. Villar, A. Madirolas, A. Cabreira, A. F. Rozenfeld, G. G. Acosta, Heliyon International Journal (OA), Ed. Elsevier, Vol. 7, 2021, e05906, ISSN 2405-8440.
10. “ROS-based architecture for fast digital twin development of smart manufacturing robotized systems”, Ivo Pérez Colo, C. Saavedra Sueldo, S. Villar, M. De Paula, y G. G. Acosta; Annals of Operations Research (ANOR), 7 June 2022, Ed. Springer Nature, ISSN: 02545330, <https://doi.org/10.1007/s10479-022-04759-4>
11. “Uncovering the Secrets of the Concept of Place in Cognitive Maps Aided by Artificial Intelligence” Fernandez-Leon, J.A., G. G. Acosta, Cognitive Computation (2022), Ed. Springer, ISSN: 1866-9964, <https://doi.org/10.1007/s12559-022-10064-w>
12. “Intelligent approach for the industrialization of deep learning solutions applied to fault detection”, Ivo Pérez Colo, C. Saavedra Sueldo, M. De Paula, G. G. Acosta; Expert Systems With Applications 233 (2023), Ed. Elsevier, ISSN: 0957-4174, <https://doi.org/10.1016/j.eswa.2023.120959>

For an exhaustive list please visit the public CONICET’s website:

https://www.conicet.gov.ar/new_scp/detalle.php?keywords=&id=20040&datos_academicos=yes

MAIN INTERACTION with ENTERPRISES

1. Design, development and implementation of a running prototype for cement bagged evaluation with Computer Vision and Artificial Intelligence. Cementos Avellaneda S.A., Olavarría – Argentina. 2023 (6 months). Budget: U\$D 4,800.-
2. Design, development and implementation of an Autopilot and planning module with AI for an autonomous surface vehicle. REDIMEC S.A., Tandil – Argentina. 2022 (18 months). Budget: U\$D 54,300.-
3. Design, development and implementation of an AI model for fault detection and diagnosis in rotary machines. MAPER S.R.L., Ciudad de Buenos Aires – Argentina. 2021 (12 months). Budget: U\$D 6,000.-
4. Design, development and implementation of an industrial prototype of the autonomous underwater vehicle ICTIOBOT-1000. Y-TEC S.A., Ensenada – Argentina. 2015 (12 months). Budget: U\$D 390,000.-
5. Tools for an efficient production in textile cooperatives. Federación de Cooperativas de la Prov. de Buenos Aires, Las Flores – Argentina. 2015 (18 months). Budget: U\$D 22,000.-
6. Design and implementation of the WAN-LAN for the Olavarría Municipality , Olavarría – Argentina. 2012 (18 months). Budget: U\$D 18,000.-
7. Knowledge Management: development of a tool for the enhancement and management of human talent within the MSE with fuzzy logic. TECNOAP, La Plata – Argentina. 2010 (12 months). Budget: U\$D 8,000.-

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8. Design and implementation of the planning and replanning module for an Autonomous Underwater Vehicle with an Expert System (Autotracker module). Transfer of the simulation module for the development of new knowledge and tuning in the knowledge base. SeaByte Ltd., Edimburgh – Scotland UK. 2005 (24 months). Budget: U\$D 70,000.-
9. Design and implementation of End of Train Device for train monitoring. FERROSUR S.A., Olavarría – Argentina. 2003 (24 months). Budget: U\$D 12,000.
10. Design and implementation of Measurement and tracking of pressure and temperature for gas installations through a portable PC. FANIT S.A., Olavarría – Argentina. 2001 (4 months). Budget: U\$D 2,500.-
11. Design and implementation of Measurement and tracking of temperature for concreting through a portable PC. INMAT – Facultad de Ingeniería, Olavarría – Argentina. 2001 (4 months). Budget: U\$D 1,400.-
12. Representative for Argentina of the Predictive Control tool HITO and associated engineering. INITEC, Madrid – España. 1998 (36 months).
13. Design and implementation of a Vibration monitoring system for rotary machines. CEMENTOS AVELLANEDA S.A., Olavarría – Argentina. 1996 (18 months). Budget: U\$D 8,000.-
14. Design of the global architecture of a supervisory control system and design, development and implementation of an on-line diagnosis module for sugar production with an Expert System technology. SDAD. GENERAL AZUCARERA DE ESPAÑA, S. A. Benavente, Zamora – España. 1993 (24 months). Budget: U\$D 12,000.-
15. Design, development and implementation of instrumentation for Water Wave Measurement and Recording with a PC. Comisión Técnica Mixta (Argentina-Uruguay), Salto Grande. Salto Grande, Entre Ríos – Argentina. 1992 (8 months). Budget: U\$D 1,600.-

PROJECTS MANAGEMENT

Time	Nature and Source of the Project	Budget	Number of Participants	Specific Position and Responsibilities
2021-2024	“Valuation of Vegetal Solid Waste for applications in Energy and Environment”, PICT-2019-03745, funded by the National Agency for the Promotion of Science and Technology, Argentina.	U\$D 28,000	15	Principal Researcher – Director
2019-2021	“Integrated Robotic Network for Observation of the Seas – IRNOS”, funded by the EU through the EUMarine Robots – EUMR program, marine robotics research infrastructure network.	€ 5,000	8	Principal Researcher – Director
2018	“NVIDIA Hardware Grant NVIDIA Titan X Pascal GPU”, NVIDIA Corporation.	U\$D 4,500	10	Principal Researcher – Director
2018-2022	“Integrated Robotics in the Observation of the Argentine Sea – RIOMAR”, PICT 2016 3814, funded by the National Agency for the Promotion of Science and Technology, Argentina.	U\$D 52,000	40	Principal Researcher – Director
2017-2018	EMPRETECNO 2016 N°049 project for the creation of the INTELYMEC spin-off company, ElectronByte S.A. devoted to build	U\$D 270,000	18	Principal Researcher – Director

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	autonomous underwater and surface vehicles. Fonarsec – National Agency for the Promotion of Science and Technology.			
2017-2019	“Development of perovskite and spinel type nanostructures for their application in energy storage systems”, PICT 2015 2828, funded by the National Agency for the Promotion of Science and Technology, Argentina.	U\$D 50,000	15	Principal Researcher – Director
2015-2016	IEEE OES/UNCPBA Agreement on the Scientific Dissemination Article Writing Service for the EARTHZINE Magazine, on Ocean Observation issues in South America.	U\$D 10,000	4	Principal Researcher – Director
2014-2016	“Faults Detection and Diagnosis in electrical drives”, PICT 2013 0664, funded by the National Agency for the Promotion of Science and Technology, Argentina.	U\$D 45,000	10	Principal Researcher – Director
2010-2012	CONICET Project – PIP 11420090100238 “Underwater inspection systems using autonomous robots”.	U\$D 5,500	6	Principal Researcher – Director
2010-2014	“AUVICOP: Cooperative Underwater Robotics for Autonomous Inspection”, DPI2009-11298, MICINN, Spain.	€ 130,000	8	Principal Researcher – Director
2007-2010	Vacancy Areas Project in Sea Resources and the coastal zone, PAE 2004 – No. 22696, “Autonomous Inspection of Underwater Pipes and Cables – INATUCSU”, financed by the National Agency for the Promotion of Science and Technology, Argentina.	U\$D 50,000	12	Principal Researcher – Director
2007-2008	AUVI Project (Autonomous Underwater Vehicle for Inspections), MIF2-CT-2004-003027, 2nd Phase, 6 th European Framework Program for Research and Development, financed by the European Union.	€65,950	12	Principal Researcher – Director