

1. PERSONAL DATA:

Name: Gerardo Gabriel Acosta

Passport: 16759419\N

Date and place of birth: 11/06/64, General Roca, Río Negro, Argentine Republic.

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2. UNIVERSITY TITLES:

- **Engineer in Electronics**, National University of La Plata, Argentina (October 1988).
- **PhD in Computer Science**, University of Valladolid, Spain (April 1995), (Apto Cum Laude).

3. FELLOWSHIPS AND AWARDS

- ❖ Award to the Scientific Production, Buenos Aires Centre Province National University, (ORD. 2547/99), November 1999.
- ❖ Senior Member, IEEE.
- ❖ More than 10 fellowships from national and international organisms like National Scientific and Technical Research Council (CONICET), CICpBA, Iberoamerican Cooperation Institute, United Nations, University of Valladolid, Argentine Association of Automatic Control (AADECA), ANTORCHAS.

4. SCIENTIFIC BACKGROUND

- ❖ Researcher of CONICET, Argentina.
- ❖ Researcher class "C" of Buenos Aires Centre Province National University (National Incentive Program).

5. RESEARCH AND DEVELOPMENT PROJECTS LEADERSHIP:

- ❖ Director of the R+D Group INTELYMEC (ex-ADQDAT), Engineering Faculty, "Data acquisition, Control and Supervision Systems" Project, Science and Technique Secretariat-UNCPBA.
- ❖ Director of "Technological Research in Optimal Generation and Availability of Electrical Energy and Mechatronics", National Incentive Program – UNCPBA, 2003-2005.
- ❖ Director of "Design, Validation and Development of fuzzy controllers for electric motors" Project (# 2756-2255/96 – Res. No. 1303/97), Scientific Research Commission of Buenos Aires Province (CICpBA). 1997-1999.

6. EVALUATION OF RESEARCH PROJECTS:

- ❖ Member of the evaluation staff for PICT 99 (National Research Agency) projects in the area of Information Technology, Communications and Electronics; and for FONCYT, 2002, National Science and Technique Secretariat.

7. PARTICIPATION IN R+D PROJECTS:

- ❖ Member of the CONICET Project, PID-BID #0145: "Electronic Control Systems, Signal Processing and Electric Power Conversion" @ Industrial Electronic, Control and Instrumentation Lab (LEICI), UNLP, directed by Prof. Eng. Carlos Christiansen, '93-'95.
- ❖ Member of the CYTED VII.5 Project "Artificial Intelligence Techniques for Supervision, Diagnosis and Control of Processes", '96-'99.
- ❖ Member of the Project "Development of Data Acquisition Prototypes and Complimentary Circuits", @ ADQDAT Group, UNCPBA, directed by Prof. Eng. G. Jaquenod, Science and Technique Secretariat-UNCPBA. October '95/December '96.
- ❖ Member of the Project "Data acquisition, Control and Supervision Systems", @ ADQDAT Group, UNCPBA, directed by Prof. Eng. G. Jaquenod, Science and Technique Secretariat-UNCPBA. January '97/December '98.

8. PUBLICATIONS:

More than 40 national and international publications in topics of AI in control. Among them, the most outstanding are:

Book Chapters:

1. "On Line Industrial Diagnosis: an attempt to apply Artificial Intelligence techniques to process control", C. Alonso, B. Pulido, y **G. G. Acosta**, publicado en el libro Springer Lecture Notes in Artificial Intelligence 1415, Ed. Springer-Verlag, pp. 804-813 (ISBN 3-540-64582-9), 1998.

International Journals:

2. "Neural Net based control of Dynamical Systems: a case study", M.A. Mayosky, J.M. Catalfo y **G.G. Acosta**. International Journal of Applied Intelligence, Vol 3, N° 4, December 1993, pp. 267-274, Kluwer Academic Publishers.
3. "An Expert PID Controller uses Refined Ziegler and Nichols Rules and Fuzzy Logic Ideas", **G.G. Acosta**, M.A. Mayosky y J.M. Catalfo. International Journal of Applied Intelligence, Vol 4, N° 1, February 1994, pp. 64-78, Kluwer Academic Publishers.
4. "Knowledge Based Process Control Supervision and Diagnosis: the AEROLID Approach", C. Alonso, **G.G. Acosta**, J. Mira, and C. de Prada, Expert Systems with Applications, vol 14, 1998, pp 371-383. Elsevier Science Ltd.
5. "On-line Industrial Supervision and Diagnosis using TURBOLID", C. Alonso, B. Pulido, and **G.G. Acosta**, to appear in Expert Systems with Applications Journal, vol. 20, No. 2, (aceptado para su publicación en el Vol. Spring 2001).
6. "Diagnosis Basada en Conocimiento de un Proceso Azucarero con TEKNOLID", **G. G. Acosta**, C. Alonso González, and B. Pulido Junquera, International Sugar Journal Vol.103, Issue N°1225, January 2001, pp. 44-51, (ISSN 0020-8841).
7. "Knowledge Based Diagnosis of a Sugar Process with TEKNOLID", **G. G. Acosta**, C. Alonso González, and B. Pulido Junquera, International Sugar Journal, Vol. 103, Issue N°1228, April 2001, pp. 171-177, (ISSN 0020-8841).
8. "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).
9. "Genetic Algorithms and Fuzzy Control: a practical synergism for industrial applications", **G. G. Acosta** and E. Todorovich, Special Issue on Soft Computing in Industrial Applications, Computers in Industry, Elsevier Science, Vol 52/2 pp 183-195, September 2003.

Refereed Congresses with posterior publication in Proceedings:

10. "Fuzzy Logic and Pattern Recognition in a self-tuning controller", **G.G. Acosta**, M.A. Mayosky y J.M. Catalfo, Proceedings of 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '92), North Carolina, U.S.A., 7 al 10 de Julio de 1992, pp. 759-765.
11. "A Knowledge Based Approach to Fault Detection and Diagnosis in Industrial Processes: a case study", C.J. Alonso González, **G.G. Acosta**, C. De Prada Moraga y J. Mira Mira, Proc. of the IEEE Int'l Symposium on Industrial Electronics (ISIE '94), Santiago, Chile, Mayo 25-30 1994, pp. 397-402.
12. "Knowledge Based Diagnosis: dealing with fault modes and temporal constraints", **G.G. Acosta**, C.J. Alonso González, L.F. Acebes, A. Sánchez y C. De Prada; Proc. of IEEE XXth Int'l Conf. on Industrial Electronics (IECON '94), Bolonia, Italia, Setiembre 5-9, 1994, pp.1419-1424.
13. "TURBOLID: Time Used in a Rule Based On Line Industrial Diagnoser", C. Alonso, J.B. Pulido, and **G.G. Acosta**, incluido como póster en los Proc. de la IEA-AIE 96 The Ninth International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Fukuoka, Japón, 4-6 Junio 1996.
14. "PC Based Vibration Monitor for Industrial Equipment Preventive Maintenance", M. Spina, R. de la Vega, **G. Acosta**, and G. Jaquenod, Proc. de las 5ª Jornadas Hispano-Lusas de Ingeniería Eléctrica, Salamanca, España, julio 1997, pp. 1659-1664.
15. "Control Neuro-fuzzy de sistemas de generación eólica", **G.G. Acosta**, M. Mayosky, G. Cancelo, Anales del XVI Congreso Nacional de Control Automático (AADECA '98), pp. 170-175.
16. "Preliminar Studies about the incidence of different inference methods in control variables of a fuzzy controlled induction motor", **G.G. Acosta**, M. Spina, R. de la Vega, I. Landívar, Proc. of 4th IFAC Int. Symposium on Intelligent Components and Instruments for Control Applications (SICICA 2000), Buenos Aires, pp. 365-368.
17. "On the reusability of a task taxonomy for KB Supervision in Climate Control of a greenhouse", **G.G. Acosta**, C. Alonso, M. Spina, R. de la Vega, Proc. of 4th IFAC Int. Symposium on Intelligent Components and Instruments for Control Applications (SICICA 2000), Buenos Aires, pp. 243-248.
18. "Generador Automático de Controladores Difusos", E. Todorovich, N. Acosta, **G.G. Acosta**, Anales del XVII Congreso Argentino de Control Automático (AADECA 2000), pp. 315-320.

19. "Modelo de red neuronal digital para predicción climática", M. Tosini, **G.G. Acosta**, E. Boemo, Anales de CACIC 2000, Ushuaia.
20. "A Firmware Digital Neural Network for Climate Prediction Applications", **G.G. Acosta**, M. Tosini, aceptado para su publicación en los Proc. del IEEE Int'l Symposium on Intelligent Control (2001 CCA/ISIC), México, 5-7 Setiembre 2001.

9. CONGRESSES, SYMPOSIA AND CONFERENCES ORGANISATION AND ASSISTANCE

- Symposium Chair of the V Argentine Symposium on Artificial Intelligence-SADIO, Buenos Aires September 3-5, 2003.
- Program Committee Member of the I Jornadas de Trabajo sobre Diagnosis y III de Trabajo sobre Metodologías Cualitativas Aplicadas a los Sistemas Socioeconómicos, Valladolid, Spain, July 2001.
- Articles Referee for the Proceedings of the XVII^o Argentine Congress on Automatic Control (AADECA2000).
- Program Committee Member of the Argentine Symposium on Artificial Intelligence (ASAI'99), in the XXVIII Jornadas Argentinas de Informática e Investigación Operativa (JAIIO'99), Buenos Aires, September 8-9, '99 .
- Guest Panellist to the VIII Encuentro de Educación Matemática en Carreras de Ingeniería, Olavarría, May '99, dissertation "Incidence of the Information Technologies in the Math Teaching".
- Articles Referee for the Proceedings of the CAIP '98.
- Co-ordinator for Argentina, of the I Concourse of Advanced Techniques for the Electronic Teaching (CITA98), Organised by the Madrid Polytechnic University, and Works Referee for this event.
- Articles Referee for the Proceedings of the Argentine Physics Association Congress (AFA '97).
- Student Works Referee for the XXVI JAIIO.
- Dissertation of 5 conferences in topics of the speciality at the Valladolid University, Spain, in the context of the PhD Program on Information Technologies.
- Assistance to more than 20 scientific events, in the country and abroad.

10. TRANSFERENCE OF TECHNOLOGY:

- Member of the project "Development of a final train unit", for **FERROSUR S.A.**, March 2003, undergoing.
- Design and development of a PC-based instrument for the measurement and record of temperature and pressure at industrial gas installations, for **FANIT S.A.**, December 2001.
- Design and development of a PC-based instrument for the measurement and record of temperature in concrete structures, for **Civil Eng. Dept., UNCPBA**, April 2001.
- Design and development of an instrument for the measurement and record of water waves, PC based, at the Laboratorio de Hidráulica Marítima, División Electrónica, FI-UNLP, for the **Comisión Técnica Mixta (Argentina-Uruguay)** in the construction of **Salto Grande**. April/September 1992.
- Design of the global architecture of a supervision system; design, development and implementation of the on-line diagnosis module for a sugar production process in Benavente, Zamora, Spain, for **Sociedad General Azucarera de España, S. A.**, in the frame of an agreement between this enterprise and the Valladolid University. March '93/April '95.
- "Basic Notions and Use of Internet Workshop", agreement between Eng. Faculty - UNCPBA and **Cooplectic (Coopenet)**, for the capacitating of new users. Duration: 6 hs. (30 times during 1998).
- "Vibration monitoring system for rotating machines" for the enterprise: **Cementos Avellaneda S.A.**
- "Intelligent Control and Production in greenhouses", winner of the extension projects organised by **Prov. de Buenos Aires and Mrio. de Educación de la Nación**.

11. TEACHING ANTECEDENTS

Graduated

Actual Position: Professor in the Electronic Area, Electromechanical Dept., Engineering Facultad de Ingeniería-UNCPBA, in the topic of Control Systems.

Other positions:

- Professor of "Artificial Intelligence in Automation", "Signal and Systems Theory", "Neural Nets and Fuzzy Logic for Control", Eng. Faculty, UNCPBA.
- Professor of "Control II", Exact Sciences Faculty, UNCPBA.

Postgraduate

- Professor of the PhD Program in Computer Sciences, Exact Sciences Faculty, UNCPBA. Actual.
- Invited Professor of the PhD Program in Engineering, Eng. Faculty, UN La Plata. Topic: Control Systems based on Fuzzy Logic, with Prof. MSc. O. Calvo and Dr. M. Mayosky. (40 hs.). 1996/7.
- Invited Professor of the PhD Program in Information Technologies, Sciences Faculty, Valladolid University. Given Lectures: "**Roles of Artificial Intelligence in Process Control**", May 1996, "**Diagnosis in Industrial Processes with Knowledge Based Systems**", July 1997, "**Control Neurofuzzy control of an eolic power generator**", May 1998, "**Reuse of a task taxonomy for process supervision**", September 2000.
- Winter School of Digital Signal Processing, Electromechanical Dept., Eng. Faculty - UNCPBA, Aug./Sept. '97, topic "**Digital signals**" (16 hs.)
- "**Notions on Fuzzy Logic and its applications in Control**", Automation and Systems Dept., Valladolid University and FUEVA (University-Enterprise Foundation), 12 hours, May 1996.
- "**Artificial Intelligence in Process Control**", Eng. Faculty-UNCPBA. 40 hs. Nov./Dec. '95.
- "**PID Controllers**". Eng. Faculty, UN La Plata. 15 hs. Nov. '92, with Prof. R.J. Mantz and P.F. Puleston.

12. THESES AND STUDENT DIRECTION

Graduate Actual:

- NAME: Electromechanical Engineer Fernando Benger; Auxiliar Teacher at Engineering Faculty - UNCPBA, INTELYMEC Group. PhD Thesis. TOPIC: Fault Detection and Diagnosis in electric machines. (South National University).
- NAME: Electromechanical Engineer Marclos Peñalva; CICPBA Fellow, INTELYMEC Group. TOPIC: Fault Detection and Diagnosis in electric machines.
- NAME: Electromechanical Engineer Esteban Gelso; Auxiliar Teacher at Engineering Faculty - UNCPBA, INTELYMEC Group. PhD Thesis. TOPIC: Fault Detection and Diagnosis for industrial applications. (University of Valladolid, Spain).
- NAME: System Engineer Marcelo Tosini; JTP at Exact Sciences Faculty - UNCPBA - INTIA Group. PhD Thesis. TOPIC: Digital Neural Networks implantation in FPGA. (UNCPBA).
- NAME: System Engineer Hugo Curti; JTP at Exact Sciences Faculty - UNCPBA-INTIA Group. Master/PhD Thesis. TOPIC: Cognitive Modelling for reactive navigation of Autonomous Vehicles. (UNCPBA).
- NAME: System Engineer José Fernández León; Auxiliar at Exact Sciences Faculty - UNCPBA - INTIA Group. Master/PhD Thesis. TOPIC: Adaptive Learning in Mobile Robots. (UNCPBA).

Graduate Previous:

- NAME: System Engineer Marcelo Tosini; JTP at Exact Sciences Faculty - UNCPBA, INCA Group. Master Thesis. TOPIC: Digital Neural Networks for climate prediction applications.
- NAME: Computer Science Bachelor José Belarmino Pulido Junquera; FPI Fellow (Mrio. de Educación y Ciencia del Gobierno Español), Computer Science Dept., University of Valladolid, España, April '93/ '95. Master Thesis. TOPIC: "TURBOLID: KBS for the diagnosis of continuous processes using temporal reasoning", DINFOR 9501 Research Project. Co-director of: Prof. Carlos Alonso (DINFOR-UVA).

Undergraduate Actual: 4

Undergraduate Previous: 8

13. BACKGROUND IN UNIVERSITY MANAGEMENT:

- ❖ **Director of the Department** of Electromechanical Engineering, Eng. Faculty, UNCPBA, since February 2001 until now.
- ❖ **Dean's Academic Secretary** of Eng. Faculty, UNCPBA, March 1999 to December 2000.
- ❖ **Titular Professor of the Academic Council** of Eng. Faculty, UNCPBA, Feb.'98/ Feb. '99.
- ❖ **Electronic Area Chief** of the Electromechanical Eng. Dept., Eng. Faculty, Feb. '97/Feb. '98.
- ❖ Member of the **Department Council** of Electrotechnique at Eng. Faculty, UN La Plata, August '89/Sept. '90.

14. OTHER PROFESSIONAL BACKGROUND

- ❖ Member of the Argentinean Association of Automatic Control (AADECA), the national branch of IFAC.
- ❖ Senior Member of the Institute of Electric and Electronic Engineers (IEEE) and Vice-President of the Argentine Chapter on Neural Networks.