

Rafael Parra-Hernández

EDUCATION

University of Victoria, Victoria, British Columbia CANADA

Ph.D. Candidate, Electrical and Computer Engineering
(Expected graduation date: Spring 2005)

- Dissertation Topic: "Study of admission and allocation techniques"
- Advisor: Nikitas J. Dimopoulos

Centro Nacional de Investigacion y Desarrollo Tecnológico, Cuernavaca MEXICO
(*National Centre for Research and Technological Development*)

M.Sc., Electronics Engineering (Control Systems), April 1996.

- Dissertation Topic (*In spanish*): "Supervisory Control and Speed Control for a Gas Turbine using Artificial Neural Networks"

Instituto Tecnológico de Veracruz, Veracruz MEXICO
(*Veracruz Institute of Technology*)

B.S., Industrial Engineering, August 1993.

HONORS AND AWARDS

National Council for Science and Technology scholarship
(CONACYT-MEXICO) 1999–2002

University of Victoria Fellowship Award 1999–2000

First Place (Master Level) in The XVIII National Contest of Thesis (MEXICO. Sponsors: Electrical Research Institute, IEEE-Morelos Section and The Federal Commission of Electricity), 1997

Third place in Theory Work in The Second Joint Mexico-US International Workshop on Neural Networks and Neurocontrol Playa del Carmen QR., August, 1997

National Council for Science and Technology scholarship
(CONACYT-MEXICO) 1993–1995

Mexican Electric Research Institute (IIE) scholarship 1994–1995

ACADEMIC EXPERIENCE

University of Victoria, Victoria, British Columbia CANADA
WWW: www.uvic.ca

Graduate Student

August, 1999–present

Includes current Ph.D. research, coursework and research projects. The Ph.D. work looks at the problem of resource allocation in systems with a finite amount of available resources. The goal of the work is to develop an approach that produces a solution to the resource allocation problem in a timely manner in order to be useful in real time applications. The proposed approach has been evaluated in simulation when applied to the channel allocation problem in a cellular system and to the task allocation in a grid computing system.

Sessional Lecturer

May–August, 2002

- ELEC 403 Engineering Design by Optimization I, Summer 2002.

Marker Assistant and Laboratory Instructor Assistant

Summer 2000-2001, Spring 2002

Centro Nacional de Investigacion y Desarrollo Tecnologico, Cuernavaca MEXICO
WWW: www.cenidet.edu.mx

Instructor Assistant and Research Assistant

April, 1996–August,1999

Graduate Student

September, 1993–April,1996

Includes M.Sc. research, coursework and research projects. The M.Sc. work looked at the problem of speed control in a gas turbine (a part of a generation power plant). A generation power plant model already developed at the Mexican Electric Research Institute for testing all control systems strategies was used in this work. A supervisory system and a speed control system using neural networks were developed during this research.

Instituto Tecnologico de Estudios Superiores de Monterrey (ITESM-Campus Morelos) , Morelos MEXICO WWW: www.mor.itesm.mx

Sessional Lecturer

September–December, 1996

- Computer Architecture I, Fall 1996.

JOURNAL
PUBLICATIONS

1.-R. Parra-Hernandez and N. Dimopoulos, A New Heuristic for Solving the Multi-choice Multidimensional Knapsack Problem. In print, **IEEE Transaction on Systems, Man and Cybernetics. Part A: Systems and Humans**.

2.-R. Parra-Hernandez and N. Dimopoulos, Heuristic Approaches for Solving the Multidimensional Knapsack Problem (MKP) , **WSEAS Transactions on Systems**, Issue 2, Vol. 1, April 2002, pp. 248–253.

3.-R. Parra-Hernandez, Jaime Alvarez Gallegos, Jose A.Hernandez Reyes, Simple recurrent neural network: A neural network structure for control systems, **Neurocomputing (Elsevier Science)** , Vol. 23, Issue 1–3,1998, pp. 277–289.

4.-(*In spanish*) J. A. Hernandez Reyes , Ja. Alvarez G. y R. Parra-Hernandez, Sistema Neuronal de Estimacion de la Constante de Tiempo del Rotor de un Motor de Induccion, **CIENTIFICA-ESIME** , Year 2, No. 5, Sept–Oct.1997, pp. 7–14.

CONFERENCE
PRESENTATIONS

5.-R. Parra-Hernandez, D. Vanderster, and N. Dimopoulos, Resource Management and Knapsack formulations on the Grid. IEEE/ACM International Workshop on Grid Computing, November 2004, USA, pp. 94–101.

6.-E. Laxdal, R. Parra-Hernandez and N. Dimopoulos, Guided Construction of Training Data Set for Neural Networks. IEEE International Conference on Systems, Man & Cybernetics, October-2004, The Hague, The Netherlands, pp. 5905–5910.

7.-R. Parra-Hernandez and N. J. Dimopoulos, Channel Resource Allocation/Reallocation in Cellular Communication and Linear Programming, IEEE International Conference on Systems, Man & Cybernetics, October 2003, Washington DC, USA, pp. 2983–2989.

8.-R. Parra-Hernandez, Constrained-learning in artificial neural networks, IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM '03),

Victoria, Canada, pp.352–355

9.-R. Parra-Hernandez and N.Dimopoulos, On the performance of the ant colony system for solving the multidimensional knapsack problem , 2003 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM '03),Victoria, Canada, pp. 338–341

10.-R. Parra-Hernandez and N. J. Dimopoulos, A Heuristic for Solving the Multichoice Multidimensional Knapsack Problem (MMKP), Paris, France. International Symposium on Combinatorial Optimization (CO'02), Book of abstracts, April, 2002, page 104.

11.-R. Parra-Hernandez , J. Alvarez G., M. Sanchez P., Neurocontroller Speed for Gas Turbines, The Second Joint Mexico-US International Workshop on Neural Networks and Neurocontrol Playa del Carmen QR.(Mexico), 19–29 / August-1997, pp.236–243

12.-J.A. Hernandez R., R. Parra-Hernandez, J. Alvarez G., J.C. Alarcon R., J. Ibarra L., A Neural Network Structure and Learning Algorithm for Control of Dynamic Systems, The Second Joint Mexico-US International Workshop on Neural Networks and Neurocontrol Playa del Carmen QR(Mexico)., 19–29 / August-1997, pp. 68–75.

13.-R. Parra-Hernandez, J.Alvarez G., M.Sanchez P., A Neural Network Speed Controller for Gas Turbines, Proceedings of CIS97 (Control of Industrial Systems, Mayo-1997), France, Vol. 2/3, pp. 583–588.

14.-(*In spanish*) M. Sanchez Parra y R. Parra-Hernandez, Sistema de Control Supervisorio para una Turbina de Gas Basado en Redes Neuronales Artificiales, Reunion de Verano de Potencia RVP96, Acapulco, Guerrero, Vol. CSA-10, pp. 293–298.

RESEARCH
CO-SUPERVISION
WORKS

(*In spanish*) J.A. Hernandez-Reyes, **Time Constant rotor estimation using a new recurrent neural network**, MSc Thesis, Department of Electronics, Centro Nacional de Investigacion y Desarrollo Tecnologico, December 1997, Supervisors: Dr. J. Alvarez Gallegos (leader) and Mr. R. Parra Hernandez (assistant)

(*In spanish*) J.L. Ibarra-Lopez, **Control of an underactuated electromechanical system**, MSc Thesis, Department of Electronics, Centro Nacional de Investigacion y Desarrollo Tecnologico, September 1999, Supervisors: Dr. J. Alvarez Gallegos (leader) and Mr. R. Parra Hernandez (assistant).

(*In spanish*) J.C. Alarcon-Rocha, **Implementation of Controllers for non-linear systems using neural networks**, MSc Thesis, Department of Electronics, Centro Nacional de Investigacion y Desarrollo Tecnologico, November 1999, Supervisors: Dr. J. Alvarez Gallegos (leader) and Mr. R. Parra Hernandez (assistant).

(*In spanish*) J. Perez-Ramirez, **Image compression using neural networks**, MSc Thesis, Department of Electronics, Centro Nacional de Investigacion y Desarrollo Tecnologico, Feb. 2000, Supervisors: Dr. J. Alvarez Gallegos (leader) and Mr. R. Parra Hernandez (assistant)

REFERENCES

Upon Request