

**RAFAEL FALCON MARTINEZ, M. Sc., B. Sc.**  
**FULL CURRICULUM VITAE**

**Birth date:** June 26<sup>th</sup>, 1979  
**Birth place:** Cienfuegos, Cuba



**Workplace:** Electrical Engineering and Computer Science (EECS)  
University of Ottawa, Canada

**Position:** Research Assistant, PhD graduate

**Telephone:** (613) 562 5800 ext 2141

**Email:** [rfalcon@uottawa.ca](mailto:rfalcon@uottawa.ca)

**Milestones:**

- 2012/03 – Received his Doctoral degree in Computer Science at the University of Ottawa, Canada
- 2009/01 – 2<sup>nd</sup> co-edited Springer book is released
- 2008/02 – 1<sup>st</sup> co-edited Springer book is released
- 2006/04 – Received his Master’s degree in Computer Science at Universidad Central de Las Villas (UCLV), Cuba
- 2003/07 – Received his Bachelor’s degree in Computer Science at Universidad Central de Las Villas (UCLV), Cuba

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**TEACHING EXPERIENCE**

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**Undergraduate courses**

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**At Central University of Las Villas (UCLV, Full-Time Instructor)**

- Assembly Language, 2nd year Comp. Science, UCLV, 2003 – 2007
- Programming Windows, 3rd year Computer Science, 2003 – 2008
- Introduction to Computing, 1<sup>st</sup> year Foreign Languages, 2003 – 2006
- Programming Languages, 3<sup>rd</sup> year Computer Science, 2006 – 2007
- Operating Systems I, 3<sup>rd</sup> year Computer Science, 2007-2008

**At University of Ottawa (Teaching Assistant and Part-Time Instructor)**

- Introduction to Computing II (ITI1121B), Part-Time Instructor (Winter 2012)
- Databases I (CSI 2132), TA (Winter 2011)
- Introduction to Computing Concepts (CSI 1308), Fall 2010 & 2011 (Part-Time Teacher), Fall 2009 (Guest Lecturer)
- Computing Concepts for Business (CSI 1306E), Winter & Fall 2009, Winter 2010 (Teaching Assistant and Guest Lecturer)
- Introduction to Computers I (ITI 1120), TA (Fall 2008)
- Advanced Programming Concepts with C++ (CSI 2372A), TA (Fall 2008)

- Computer Networks and Protocols (CSI 4118), TA (Fall 2008)
- Operating Systems (CSI 3131), Guest Lecturer, Spring-Summer 2011.

## Graduate courses

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### At Central University of Las Villas (UCLV)

- Advanced Aspects of Windows 2000, September – November 2004
- ADO.NET Database Programming, Master's course in Computer Science, February 2005
- The Microsoft.NET Development Environment, course on Advanced Software Development Techniques and .NET Technology, April – June 2006
- Advanced Programming Techniques (Enterprise Application Development in Java), Master's course in Computer Science, March 2007

### At Foreign Academic Institutions

- Artificial Neural Networks, Master's course in Applied Computing, Invited Instructor at the University of Managua (U de M), Nicaragua, July 28<sup>th</sup> – August 29<sup>th</sup>, 2007
- Neuro-Fuzzy Systems, Master's course in Applied Computing, Invited Instructor at the University of Managua (U de M), Nicaragua, July 28<sup>th</sup> – August 29<sup>th</sup>, 2007

### At the Entrepreneurial Environment

- Advanced Programming with C#.NET, ETECSA (Telecommunications Company) Cienfuegos, August 2005
- Advanced Programming with VB.NET, ETECSA Havana, May 2006
- SQL Server 2000: Functioning and Management, ETECSA Cienfuegos, October 2006

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## RESEARCH INTERESTS

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My doctoral studies are concerned with the design of fault-tolerant protocols for **sensor placement** and **coverage repair** in Wireless Sensor and Robot Networks (WSRNs), an emergent research area stemming from the integration between wireless sensor networks and multi-robot systems.

The ability of mobile robots nowadays to carry a limited number of sensors as payload can be actively exploited for providing reliable network coverage around a point of interest (**Focused Coverage**) by making use of fine-grained inter-robot and robot-sensor coordination schemes.

A large part of my research is devoted to address the real-world problem of **Carrier-based Coverage Repair**, in which one or more robots are responsible for replacing damaged sensors previously deployed in the field with spare, passive ones, in an attempt to preserve the monitoring strength of the sensor network. The main problem and its particular variations all fall under the umbrella of combinatorial optimization, which ignites the application of **Computational Intelligence** (CI) techniques, particularly **hybrid nature-inspired optimization algorithms** and **cooperative search strategies**.

I am always eager to engage in a fruitful collaboration with industry partners which feel the type of research being conducted is relevant to their needs.

Other Computational Intelligence areas that I have also worked on: knowledge-based clustering, neural networks, rough sets, fuzzy systems and case-based reasoning.

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## **ACADEMIC COLLABORATION**

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- Visiting Scholar at Data Analysis & Modeling Research Group (Hasselt University, Belgium), May 2008, May – July 2010.
- Visiting Scholar at MODO Research Group (Granada University, Spain), May 27<sup>th</sup> – June 1st, 2008

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## **PUBLISHED VOLUMES (2)**

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- Ajith Abraham, Rafael Falcon, Rafael Bello (2009) "**Rough Set Theory: A True Landmark in Data Analysis**", Studies in Computational Intelligence, Vol. 174/2009, 324 p., Springer Verlag, ISBN 978-3-540-89920-4.
- Rafael Bello, Rafael Falcon, Witold Pedrycz, Janusz Kacprzyk (2008) "**Granular Computing: at the Junction of Rough Sets and Fuzzy Sets**", Studies in Fuzziness and Soft Computing, Vol. 224/2008, 335 p., Springer-Verlag Berlin Heidelberg, ISBN: 978-3-540-76972-9

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## **JOURNAL PAPERS (5)**

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- Rafael Falcon, Marcio Almeida, Rafael Bello and Amiya Nayak (2012) "System-Level Fault Diagnosis with Dynamic Mesh Optimization". Computing and Systems, to appear.
- Rafael Falcon, Xu Li and Amiya Nayak (2011) "**Carrier-based Focused Coverage Formation in Wireless Sensor and Robot Networks**". IEEE Transactions on Automatic Control, Vol. 56 No. 10, pp. 2406 – 2417
- Benoit Depaire, Rafael Falcon, Koen Vanhoof and Geert Wets (2011) "**PSO-Driven Collaborative Clustering: a Clustering Algorithm for Ubiquitous Environments**". Intelligent Data Analysis, Vol. 15 No. 1/2011, pp. 49 – 68
- Gwanggil Jeon, Rafael Falcon, Luigi Gallo, Jechang Jeong and Il Hong Suh (2009) "**Single Field Deinterlacing Scheme using Edge Direction Vectors in Interlaced Sequences**". Optical Engineering, Vol. 48 No. 6 June 2009, pp. 1 – 10
- Gwanggil Jeon, Rafael Falcon, Donghyung Kim, Rokkyu Lee and Jechang Jeong (2008) "**Application of Bayesian Belief Network in Reliable Analysis for Video Deinterlacing**". IEEE Trans. on Consumer Electronics, Vol. 54 No. 1 February 2008, pp. 123 - 130

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## **BOOK CHAPTERS (7)**

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- Rafael Falcon, Amiya Nayak and Ivan Stojmenovic (2012) "**Robot-Assisted Wireless Sensor Networks: Recent Applications and Future Challenges**" In: Stefano Basagni, Marco Conti, Silvia Giordano and Ivan Stojmenovic (eds) "Mobile Ad Hoc Networking: the Cutting Edge Directions", Chapter 20, Wiley, To appear.

- Rafael Falcon, Gwanggil Jeon, Rafael Bello, Jechang Jeong (2009) "**Rough Clustering with Partial Supervision**" In: Ajith Abraham, Rafael Falcon, Rafael Bello (eds) "Rough Set Theory: A True Landmark in Data Analysis", Studies in Computational Intelligence, Vol 174/2009, pp. 137-161, Springer-Verlag Berlin Heidelberg
- Rafael Bello, Yudel Gómez, Yailé Caballero, Ann Nowe, Rafael Falcon (2009) "**Rough Sets and Evolutionary Computation to Solve the Feature Selection Problem**" In: Ajith Abraham, Rafael Falcon, Rafael Bello (eds) "Rough Set Theory: A True Landmark in Data Analysis", Studies in Computational Intelligence, Vol 174/2009, pp. 235-260, Springer-Verlag Berlin Heidelberg
- Gwanggil Jeon, Rafael Falcon, Jechang Jeong (2008) "**Rough Set Approach to Video Deinterlacing Systems**" In: Rafael Bello, Rafael Falcon, Witold Pedrycz, Janusz Kacprzyk (eds) "Granular Computing: at the Junction of Rough Sets and Fuzzy Sets", Studies in Fuzziness and Soft Computing, Vol. 224/2008, pp. 143-160, Springer-Verlag Berlin Heidelberg
- Yanet Rodríguez, Rafael Falcon, Alain Varela, María M García (2008) "**Learning Membership Functions for an Associative Fuzzy Neural Network**" In: Rafael Bello, Rafael Falcon, Witold Pedrycz, Janusz Kacprzyk (eds) "Granular Computing: at the Junction of Rough Sets and Fuzzy Sets", Studies in Fuzziness and Soft Computing, Vol. 224/2008, pp. 163-173, Springer-Verlag Berlin Heidelberg
- Leticia Arco, Rafael Bello, Yailé Caballero, Rafael Falcon (2008) "**Rough Text Assisting Text Mining: Focus on Documents Clustering Validity**" In: Rafael Bello, Rafael Falcon, Witold Pedrycz, Janusz Kacprzyk (eds) "Granular Computing: at the Junction of Rough Sets and Fuzzy Sets", Studies in Fuzziness and Soft Computing, Vol. 224/2008, pp. 245-265, Springer-Verlag Berlin Heidelberg
- Gwanggil Jeon, Rafael Falcon, Jechang Jeong (2008) "**Fuzzy Rule-Based Direction-Oriented Resampling Algorithm in High Definition Display**" In: Rafael Bello, Rafael Falcon, Witold Pedrycz, Janusz Kacprzyk (eds) "Granular Computing: at the Junction of Rough Sets and Fuzzy Sets", Studies in Fuzziness and Soft Computing, Vol. 224/2008, pp. 287-305, Springer-Verlag Berlin Heidelberg.

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### **MAGAZINE PAPERS (1)**

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- Xu Li, Rafael Falcon, Amiya Nayak and Ivan Stojmenovic (2012) "**Servicing Wireless Sensor Networks by Mobile Robots**", IEEE Communications Magazine, to appear.

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### **CONFERENCE PAPERS (26)**

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- Rafael Falcon, Hai Liu, Amiya Nayak and Ivan Stojmenovic (2012) "**Controlled Straight Mobility and Energy-Aware Routing in Robotic Wireless Sensor Networks**", 2012 IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), Hangzhou, China, May 16 – 18, 2012, to appear.
- Rafael Falcon and Rami Abielmona (2012) "**A Response-Aware Risk Management Framework for Search-and-Rescue Operations**", 2012 IEEE Congress on Evolutionary Computation (CEC), Brisbane, Australia, June 10 – 15, 2012, to appear.

- Rafael Falcon, Xu Li, Amiya Nayak and Ivan Stojmenovic (2012) "**A Harmony-Seeking Firefly Swarm to the Periodic Replacement of Damaged Sensors by a Team of Mobile Robots**", 2012 IEEE International Conference on Communications (ICC), Ottawa, Canada, June 10 – 15, 2012, to appear.
- Rafael Falcon, Rami Abielmona and Amiya Nayak (2011) "**An Evolving Risk Management Framework for Wireless Sensor Networks**", 2011 IEEE International Conference on Computational Intelligence for Measurement Systems and Applications (CIMSA), Ottawa, Canada, Sept 19-21, 2011, pp. 1 – 6.
- Rafael Falcon, Marcio Almeida and Amiya Nayak (2011) "**Fault Identification with Binary Adaptive Fireflies in Parallel and Distributed Systems**", 2011 IEEE Congress on Evolutionary Computation (CEC), New Orleans, USA, June 5-8 2011, pp. 1359 – 1366.
- Rafael Falcon, Benoit Depaire and An Caris (2011) "**The One-Commodity Traveling Salesman Problem with Selective Pickup and Delivery**", 25<sup>th</sup> Conference of the Belgian Operations Research Society (ORBEL 25), Ghent, Belgium
- Rafael Falcon, Marcio Almeida, Amiya Nayak and Rafael Bello (2011) "**Reliable Fault Detection in Diagnosable Systems with Dynamic Mesh Optimization**", 1st International Conference on Computer Science and Informatics (CICCI), Havana, Cuba, February 7-12, 2011.
- Rafael Falcon, Xu Li, Amiya Nayak and Ivan Stojmenovic (2010) "**The One-Commodity Traveling Salesman Problem with Selective Pickup and Delivery: an Ant Colony Approach**", IEEE Congress on Evolutionary Computation (CEC), Barcelona, Spain, July 18-23 2010, pp. 4326-4333.
- Rafael Falcon, Marcio Almeida and Amiya Nayak (2010) "**A Binary Particle Swarm Optimization Approach to Fault Diagnosis in Parallel and Distributed Systems**", IEEE Congress on Evolutionary Computation (CEC), Barcelona, Spain, July 18-23 2010, pp. 41-48.
- Rafael Falcon, Xu Li and Amiya Nayak (2010) "**Carrier-Based Coverage Augmentation in Wireless Sensor and Robot Networks**", 30<sup>th</sup> IEEE International Conference on Distributed Computing Systems, Genoa, Italy, June 21 – 25, 2010, pp. 234 – 239.
- Rafael Falcon, Gwanggil Jeon, Kangjun Lee, Rafael Bello and Jechang Jeong (2009) "**Mechanisms of Partial Supervision in Rough Clustering Approaches**", In: P. Wen et al (eds.) RSKT 2009, Lecture Notes in Computer Science Vol. 5589, pp. 38 – 45
- Kangjun Lee, Gwanggil Jeon, Rafael Falcon, Changwoo Ha and Jechang Jeong (2009) "**An Adaptive Fast Multiple Reference Frame Selection Algorithm for H.264/AVC Using Reference Region Data**", In: IEEE Workshop on Signal Processing Systems: Design and Implementation, art. no. 5336231, pp. 93 – 96.
- Rafael Falcon, Benoît Depaire, Koen Vanhoof and Ajith Abraham (2008) "**Towards a Suitable Reconciliation of the Findings in Collaborative Fuzzy Clustering**". Eight International Conference on Intelligent Systems Design and Applications – ISDA 2008, Taiwan, IEEE CS Press, USA, ISBN 978-0-7695-3382-7, pp. 652-657

- Amilkar Puris, Rafael Bello and Rafael Falcon (2008) "**Feature Selection through Dynamic Mesh Optimization**" Lecture Notes in Computer Science Vol. 5197, pp. 348-355, Springer-Verlag Berlin Heidelberg
- Gwanggil Jeon, Rafael Falcon, Joohyun Lee and Jechang Jeong (2008) "**Spatio-Temporal Edge-Based Weighted Fuzzy Filtering for Providing Interlaced Video on a Progressive Display**". In: IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Hong Kong, June 1-6 2008, pp. 258 – 263
- Rafael Falcon, Rafael Bello, Gwanggil Jeon, Jechang Jeong (2007) "**Learning Collaboration Links in a Collaborative Fuzzy Clustering Environment**" In: Lecture Notes in Artificial Intelligence Vol. 4827 pp. 483-495 (2007)
- María Chávez, Gladis Casas, Rafael Falcon, Jorge Moreira, Ricardo Grau (2007) "**Building Fine Bayesian Networks Aided by PSO-based Feature Selection**" In: Lecture Notes on Artificial Intelligence Vol. 4827 pp. 441-451 (2007)
- Gwanggil Jeon, Rafael Falcon, Rafael Bello, Donghyung Kim, Jechang Jeong (2007) "**Application of Bayesian Network for Fuzzy Rule-Based Video Deinterlacing**" In: D. Mery and L. Rueda (Eds) PSIVT 2007, Lecture Notes in Computer Science Vol. 4872 pp. 867-878 (2007)
- Yanet Rodríguez, Rafael Falcon, Alain Varela, María M García (2006) "**Learning Membership Functions for an Associative Fuzzy Neural Network**", Proceedings of the 1<sup>st</sup> International Symposium on Fuzzy and Rough Sets (ISFUROS 2006), Editorial Feijoo, ISBN 959-250-308-7, 67 – 68
- Rafael Falcon, Aylín Labrador, Ángel M. Navarro, Yanet Rodríguez, María M. García (2006) "**Módulo de Experimentación Combinatoria para la Evaluación de Modelos Neuroborrosos Asociativos**", Proceedings of the 7th International Scientific Conference UNICA 2006, ISBN 959-16-0473-4, 18 – 19
- Yanet Rodríguez, Xiomara Cabrera, Rafael Falcon, Zenaida Herrera, Ana M Contreras, María M. García (2005) "**Artificial Intelligence Hybrid Model Applied to Wastewater Treatment**" In: Lecture Series in Computer and Computational Sciences, Vol. 2, Brill (2005) 132 – 135
- Yanet Rodríguez, Xiomara Cabrera, Rafael Falcon, Zenaida Herrera, Ana M Contreras, María M García (2005) "**CBR-ANN Hybrid Model to Optimize the Sequence of Wastewater Treatments**" In: Proceedings of the International Conference on Information Technology for Environmental Engineering (ITEE 2005), Shaker Verlag, ISBN 38322-4362-3
- Rafael Falcon, Yanet Rodríguez, María M García, Rafael Bello, Alain Varela, Yasel Couce (2005) "**Plataforma para el Desarrollo de Modelos Asociativos Neuroborrosos**" In: XII Internacional Symposium on Electrical Engineering (SIE 2005), ISBN 959-250-201-3, 72-76
- Yanet Rodríguez, María M García, Rafael Bello, Rafael Falcon (2005) "**Explicación Basada en Casos Utilizando Conjuntos Borrosos para un Sistema Experto Conexionista**" In: XI Internacional Convention "Informática 2005", ISBN 959-7164-87-6
- Yanet Rodríguez, María M Garcia, Rafael Bello, Rafael Falcon (2005) "**Extending CBR-**

**ANN Hybrid Models Using Fuzzy Sets**" In: Proceedings of the International Conference on Neural Networks and Brain (ICNN&B 2005), ISBN 0-7803-9422-4, 1755-1760

- Rafael Falcon, Yanet Rodríguez (2004) "**NeuroDeveloper 2.0: A Computational Tool for the Artificial Neural Networks Development in Presence of Fuzzy Traits**" In: X International Convention "Informática 2004", ISBN 959-237-117-2

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## **TECHNICAL REVIEWS – CONFERENCES, JOURNALS AND BOOKS**

### **Journals**

- 2012 "**IEEE Transactions on Parallel and Distributed Systems**"
- 2012 "**Int'l Journal of Communication Networks and Distributed Systems**"
- 2012 "**Elsevier Journal on Computer Communications**"
- 2011 "**European Transactions on Telecommunications**"
- 2011 "**International Journal of Distributed Sensor Networks**"
- 2010 "**IEEE Transactions on Systems, Man and Cybernetics, Part B**"
- 2011 "**Elsevier Journal of Information Sciences**"
- 2011 "**IEEE Transactions on Industrial Informatics**"
- 2011 "**IEEE Transactions on Parallel and Distributed Systems**"
- 2010 "**Elsevier Journal of Information Sciences**"
- 2010 "**EURASIP Journal on Wireless Communications and Networking**"
- 2010 "**International Journal of Systems Science**"
- 2010 "**Revista de la Facultad de Ingeniería**", Universidad de Antioquía, Colombia"
- 2010 "**Pattern Recognition**"
- 2010 "**IEEE Transactions on Evolutionary Computation**"
- 2010 "**International Journal of Computer and Applications**"
- 2010 "**Elsevier Journal of Decision Support Systems**"
- 2010 "**IEEE Transactions on Systems, Man and Cybernetics, Part B**"
- 2010 "**IEEE Transactions on Automatic Control**"
- 2010 "**IEEE Transactions on Parallel and Distributed Systems**"
- 2008 "**International Journal of Computer and Applications**"
- 2008 "**IEEE Transactions on Evolutionary Computation**"
- 2007 "**IEEE Transactions on Systems, Man and Cybernetics, Part A**"
- 2007 "**Journal of Advances in Fuzzy Systems**"

### **Conferences**

- 2013 "**2<sup>nd</sup> Int'l Conference on Informatics and Computer Sciences (CICCI 2013)**"
- 2012 "**51<sup>st</sup> IEEE Conference on Decision and Control (CDC 2012)**"
- 2012 "**IEEE WCCI Special Session on Computational Intelligence for Security, Surveillance and Defense (CISSD 2012)**"
- 2012 "**IEEE Congress on Evolutionary Computation (IEEE CEC 2012)**"
- 2012 "**7<sup>th</sup> International Workshop on Intelligent Systems Techniques for Ad Hoc and Wireless Sensor Networks (IST-AWSN 2012)**"
- 2012 "**International Workshop on Wireless Sensor Actor and Actuator Networks (WiSAAN 2012)**"
- 2011 "**8<sup>th</sup> IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS 2011)**"
- 2011 "**6<sup>th</sup> International Workshop on Intelligent Systems Techniques for Ad Hoc and Wireless Sensor Networks (IST-AWSN 2011)**"

- 2011 "**International Workshop on Semantic Interoperability (IWSI 2011)**"
- 2010 "**7<sup>th</sup> IEEE International Conference on Mobile Ad-Hoc and Sensor Systems (MASS 2010)**"
- 2010 "**IEEE GLOBECOM, Ad-Hoc and Sensor Networking Symposium**"
- 2010 "**1<sup>st</sup> International Workshop on Semantic Sensor Web (SSW 2010)**"
- 2010 "**5th International Conference on Frontier of Computer Science and Technology (FCST 2010)**"
- 2009 "**6<sup>th</sup> IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2009)**"
- 2009 "**IEEE International Conference on Communications (ICC 2009)**", Ad Hoc and Sensor Networking Symposium.
- 2008 "**The 7<sup>th</sup> Mexican Conference on Artificial Intelligence (MICAI 2008)**"
- 2006 "**The 1<sup>st</sup> Int'l Symposium on Fuzzy and Rough Sets (ISFUROS 2006)**"

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### **CONFERENCE AND WORKSHOP ORGANIZATION**

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<b>2012</b>	Submission Chair of the 5 <sup>th</sup> International Workshop on Wireless Sensor, Actuator and Robot Networks ( <b>WiSARN 2012-Spring</b> ), Hangzhou, China.
<b>2012</b>	Publication Chair of the 11 <sup>th</sup> International Conference on Ad Hoc Networks and Wireless ( <b>ADHOC-NOW 2012</b> ), Belgrade, Serbia.
<b>2012</b>	Local Arrangement Chair of the IEEE Workshop on Computational Intelligence for Security and Defense Applications ( <b>CISDA 2012</b> ), Ottawa, Canada
<b>2011</b>	Submission Chair of the 4 <sup>th</sup> International Workshop on Wireless Sensor, Actuator and Robot Networks ( <b>WiSARN 2011-FALL</b> ), Valencia, Spain.
<b>2011</b>	Submission Chair of the 3 <sup>rd</sup> International Workshop on Wireless Sensor, Actuator and Robot Networks ( <b>WiSARN 2011</b> ), Shanghai, China.
<b>2011</b>	Publication Chair of the 7 <sup>th</sup> IEEE International Conference on Distributed Computing in Sensor Systems ( <b>DCOSS 2011</b> ), Barcelona, Spain.
<b>2010</b>	Submission Chair of the 1st International Workshop on Wireless Sensor, Actuator and Robot Networks ( <b>WiSARN 2010</b> ) in Montreal, Canada and its 2 <sup>nd</sup> edition ( <b>WiSARN 2010-FALL</b> ) in Hangzhou, China.
<b>2008</b>	Executive Secretary of the 1 <sup>st</sup> Ibero-American School on Fuzzy and Rough Sets ( <b>ESICBA 2008</b> ), Santa Clara, Cuba.
<b>2006</b>	Executive Secretary of the First International Symposium on Fuzzy and Rough Sets ( <b>ISFUROS 2006</b> ), Santa Clara, Cuba.

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**INVITED TALKS**

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<b>2011/05/16</b>	<i>"An Evolving Risk Management Framework for Wireless Sensor Networks and its Application to Environment Monitoring"</i> , <b>LARUS Technologies Corporation, Ottawa, Canada</b>
<b>2010/12/17</b>	<i>"Nature-Inspired Optimization in Fault-Reactive Wireless Sensor and Robot Networks"</i> , <b>IEEE CIS Ottawa Chapter, Canada</b>
<b>2010/11/17</b>	<i>"Carrier-Based Coverage Repair and Formation Protocols in Wireless Sensor and Robot Networks"</i> , <b>Team SITE, University of Ottawa, Canada</b>
<b>2010/06/15</b>	<i>"Artificial Ant Colonies for Coverage Repair in Wireless Sensor and Robot Networks"</i> , <b>IMOB, Hasselt Universiteit, Belgium</b>
<b>2008/06/19</b>	<i>"Multiobjective Particle Swarm Optimization Approaches in Knowledge-Based Clustering"</i> , <b>Artificial Intelligence Lab, UCLV, Cuba</b>
<b>2008/05/29</b>	<i>"Maintaining Fault-Tolerant Networks of Robots to Support Wireless Sensor Networks"</i> , <b>MODO, Universidad de Granada, Spain</b>

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## **ENTREPRENEURIAL EXPERIENCE**

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- 2011/09 – 2012/02 **MITACS Accelerate Internship Program** (with Larus Technologies Corporation). The research project is “*Online Risk-Driven Management Framework for Territorial Security in Wireless Sensor and Robot Networks*”.
- 2011/07 – 2011/08 Enrolled at the **TalentBridge entrepreneurial program** of the Ottawa Center for Regional Innovation (OCRI).
- 2010/12 – 2011/03 **MITACS Accelerate Internship Program** (with Larus Technologies Corporation). The research project is “*Risk-Driven Coverage Formation for Environment Monitoring in Wireless Sensor and Robot Networks*”.

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## **SUPERVISED THESES**

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<b>2007</b>	<b>“System for the Certification of Scientific Publications and Affidavits of Concluded Research Works”</b> , Julio César Báez Vergara, B. Sc. Thesis
<b>2006</b>	<b>“Module of Combinatorial Experimentation to the Evaluation of Neuro-Fuzzy Associative Models”</b> , Aylín Labrador Morales & Ángel M. Navarro Moya, B. Sc. Thesis
<b>2005</b>	<b>“Automatic Assessment of Membership Function Parameters”</b> , Alain J. Varela Martín, B. Sc. Thesis.
<b>2005</b>	<b>“Implementation and Validation of the Case-Based Module of a Hybrid Model”</b> , Yasel Couce Sardiñas, B. Sc.

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## AWARDS

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- 2012, Mar 10<sup>th</sup>: **MITACS Elevate Postdoctoral Fellowship** (declined)
- 2012, Feb 7<sup>th</sup>: **Industrial Research & Development Fellowship** (IRDF) awarded by the Natural Sciences & Engineering Research Council (NSERC) with Larus Technologies Corporation as the industrial partner.
- 2012, Jan 11<sup>th</sup>: Ontario Centers of Excellence (OCE)'s **First Job** award with Larus Technologies Corporation as the industrial partner.
- 2011, Aug 23<sup>th</sup>: **MITACS Accelerate PhD Fellowship** awarded to the project "*Online Risk-Driven Management Framework for Territorial Security in Wireless Sensor and Robot Networks*".
- 2011, May 12<sup>th</sup>: **IEEE CIS "Walter Karplus" Graduate Student Research Grant** awarded to the research project "*A Nature-Inspired Metaheuristic Approach to the Scalable Replacement of Damaged Sensors by a Team of Mobile Robots*".
- 2011, May 12<sup>th</sup>: **Graduate Student Travel Grant** awarded by the Faculty of Graduate and Postdoctoral Studies of the University of Ottawa to attend the 2011 IEEE Congress on Evolutionary Computation (CEC 2011), New Orleans, USA.
- 2010, Nov 15<sup>th</sup>: **MITACS Accelerate PhD Fellowship** awarded to the project "*Risk-Driven Coverage Formation for Environment Monitoring in Wireless Sensor and Robot Networks*".
- 2010, June 9<sup>th</sup>: **IEEE CIS Student Travel Grant** awarded for participation at the 2010 World Congress on Computational Intelligence (WCCI 2010), Barcelona, Spain.
- 2010, Feb 4<sup>th</sup>: **First Prize Poster Presentation Award** in the Computer Science Department at the Engineering Faculty Day, University of Ottawa with the poster: "*Artificial Ant Colonies for Coverage Repair in Wireless Sensor and Robot Networks*".
- 2009 – 2010 **Ontario Graduate Scholarship (OGS)**
- 2009 – 2010 **Excellence Scholarship** from University of Ottawa
- **2007 Yearly Award of the Cuban Academy of Sciences** granted to the work "*Models for building classifiers by using fuzzy sets*" in conjunction with other seven authors.
- 2007 "**Future Makers**" National Award granted by the Youth Technical Brigades for his outstanding research commitment.
- 2006 **Provincial Award** of the Youth Technical Brigades (BTJ) for his contribution to the preservation of the environment by means of the application of Artificial Intelligence techniques.
- 2003: Summa cum laude graduate (**gold diploma**) as Bachelor in Computer Science.