

RAFAEL FALCON'S CURRICULUM VITAE

PHD COMPUTER SCIENCE, SENIOR MEMBER IEEE

Workplace 1: Larus Technologies Corporation
Location: Ottawa, Canada
Position: Senior Research Scientist
Workplace 2: Faculty of Engineering, Univ. of Ottawa
Position: Adjunct Professor
Telephone: (613) 244 8916 ext. 214
Email: rfalcon@ieee.org
Homepage: <http://www.eecs.uottawa.ca/~rfalc032>

OVERVIEW

- Research scientist with a strong background on **Artificial Intelligence** techniques applied to **maritime analytics, sensor networks, robotics** and **data fusion**.
- 15 years of hands-on work experience in **machine learning** and **data mining**, including **predictive analytics, evolutionary optimization, information fusion, risk management** and **natural language processing**.
- Proficient in **R, MATLAB, Java** and **C#**.
 - Currently learning **Python** and all things Big Data, including **Apache Spark, Hadoop, Flink, Pig** and **Hive**.
- 6 years of relevant industrial experience in the security and defense sectors (e.g., maritime domain awareness, C4ISR systems, wireless sensor and robotic networks, risk management framework)
- Nearly 100 peer-reviewed scientific publications: 4 co-edited books, 14 journal papers, 11 book chapters and 67 conference papers.
- Teaching experience in **Computer Science** and **Artificial Intelligence** for 10+ years. Has taught over 20 graduate and undergraduate courses.

EDUCATION

- **Computer Science, PhD degree** (University of Ottawa, Canada, Sep 2008 – Feb 2012)
 - Supervisors: Prof. Amiya Nayak and Prof. Ivan Stojmenovic
 - Thesis Title: "**Towards Fault Reactiveness in Wireless Sensor Networks with Mobile Carrier Robots**"
 - Research Focus: How to use mobile robots to provide a set of value-added services in a network of static sensors.
 - Scientific Contributions: A multi-modular risk management framework and a suite of metaheuristic optimizers powered by evolutionary and swarm intelligence algorithms.
- **Computer Science, Master's degree** (Universidad Central de Las Villas, Cuba, Jan 2004 – Apr 2006)

- Supervisors: Prof. Yanet Rodríguez and Prof. María M. García
 - Thesis Title: "**NeuroEvaluator: A Computational Platform for the Evaluation of Associative Neuro-Fuzzy Models**"
 - Research Focus: The extension of NeuroDeveloper to analyze multiple associative neural network models, optimize their configuration and recommend the most suitable one for a particular problem instance.
 - Scientific Contributions: A computational platform entitled NeuroEvaluator (extension of NeuroDeveloper) used to assess the performance of multiple associative neural network models under different preprocessing options (similar to "Auto Model" in Machine Learning)
-
- **Computer Science, Bachelor degree** (Universidad Central de Las Villas, Cuba, Sep 1998 - July 2003)
 - Supervisors: Prof. Yanet Rodríguez and Prof. María M. García
 - Thesis Title: "**NeuroDeveloper: A Computational Tool for the Development of Artificial Neural Networks in Presence of Fuzzy Traits**"
 - Research Focus: How to evaluate different associative neural network models with various types of crisp/fuzzy features.
 - Scientific Contributions: A computational platform entitled NeuroDeveloper to evaluate the performance of various associative neural network models.

WORK EXPERIENCE

Senior Research Scientist (Larus Technologies Corporation, Apr 2012 – Present)

- Design, development, validation and deployment of algorithmic solutions for the territorial security and defense markets.
- Research on high-level information fusion, machine learning, data mining, maritime domain awareness, natural language processing, anomaly detection, surveillance mission plan optimization and risk management
- Since January 2017 I have been leading a team of 6 University of Ottawa researchers working on an R&D project entitled: "*Big Data Analytics for the Maritime Internet of Things*".
 - The goal of this project is to leverage the power of Big Data to improve the operational processes of multiple organizations in the maritime supply chain, including liner shipping companies, port authorities and final consumers of goods and services. See publications labeled [C55] [C56] [C58] [C60] [C61] [C63] [C67] and [J14] for more details.

Adjunct Professor (University of Ottawa, July 2015 – Present)

- Graduate student co-supervision with faculty members of the School of Electrical Engineering and Computer Science, Faculty of Engineering.

Part-Time Instructor (University of Ottawa, Sep 2010 – Apr 2013)

- See list of courses taught in the "Teaching Experience" section

Research Assistant and PhD Candidate (University of Ottawa, Sep 2008 – Apr 2012)

- Research on wireless sensor and robot networks, i.e. the augmentation of wireless sensor networks with mobile robots to provide self-healing and fault reactive capabilities.

Intern (Larus Technologies Corporation, Dec 2010 – Mar 2011, Sep 2011 – Feb 2012)

- Research on risk management in sensor networks and the maritime world

Teaching Assistant (University of Ottawa, Sep 2008 – Feb 2012)

- See list of courses taught in the "Teaching Experience" section

Associate Instructor (Universidad Central de Las Villas, Sep 2003 – Jul 2008)

- See list of courses taught in the "Teaching Experience" section

Research Associate (Universidad Central de Las Villas, Sep 2003 – Jul 2008)

- See list of courses taught in the "Teaching Experience" section

TEACHING EXPERIENCE

UNDERGRADUATE COURSES

At Central University of Las Villas (UCLV, Associate Professor)

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

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

- Programming Language Concepts (CSI 3120), Part-Time Instructor (Fall 2016)
- Introduction to Artificial Intelligence (CSI 4106A), Part-Time Instructor (Winter 2013)
- 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

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

RESEARCH EXPERIENCE

In my early years as a researcher, I got introduced to the fascinating world of **Computational Intelligence** techniques, particularly to **associative neural networks** and their hybridization with **case-based reasoning** and **fuzzy logic**. My master's thesis was concerned with the development of NeuroEvaluator, a computational platform that analyzed several associative neural network models (and their parametric as well as feature definition configuration) and recommended the most suitable one for a given problem. I also investigated on **rough sets**, **video deinterlacing** and **knowledge-based clustering**, more specifically on collaborative fuzzy clustering and partially supervised rough clustering.

During my doctoral studies, I focused on the design and development of **robot-assisted wireless sensor networks**, an emergent research area stemming from the integration between wireless sensor networks and multi-robot systems. Several centralized and distributed algorithmic solutions were proposed to novel problems such as *robot-assisted focused coverage* (have mobile robots surround a geographical point of interest with multiple hexagonal layers of static sensors) and *robot-assisted coverage repair* (have mobile robots replace damaged sensors with passive, redundant ones already deployed in the monitoring field). A **risk management framework** was also put forth to account for a more realistic assessment of the damaged sensor nodes. I was able to apply Computational Intelligence techniques such as **evolving fuzzy clustering**, **swarm intelligence** and **evolutionary optimization** to the resolution of these challenges.

After graduating from the PhD program in Computer Science, I am happily working in the private sector as a research scientist, currently pursuing innovative solutions (mainly from a Computational/Artificial Intelligence angle) to real-world problems in the domains of **machine learning**, **high-level information fusion**, **maritime domain awareness**, **anomaly detection**, **natural language processing** and **risk management**.

The following word cloud was created from the titles of all my publications (last updated November 2013):

JOURNAL PAPERS (14)

- J14.** Fatemeh Cheraghchi, Ibrahim Abualhaol, Rafael Falcon, Rami Abielmona, Bijan Raahemi and Emil Petriu (2018) "**Modeling the Speed-based Vessel Schedule Recovery Problem using Evolutionary Multiobjective Optimization**", Information Sciences, to appear.
- J13.** Gonzalo Nápoles, Leonardo Concepción, Rafael Falcon, Rafael Bello and Koen Vanhoof (2018) "**On the Accuracy-Convergence Tradeoff in Sigmoid Fuzzy Cognitive Maps**", IEEE Transactions on Fuzzy Systems, October 2017, to appear
- J12.** Gonzalo Nápoles, Carlos Mosquera, Rafael Falcon, Isel Grau, Rafael Bello and Koen Vanhoof (2018) "**Fuzzy-Rough Cognitive Networks**". Neural Networks, Vol. 97, January 2018, pp. 19-27.
- J11.** Gerardo Félix, Gonzalo Nápoles, Rafael Falcon, Wojciech Froelich, Koen Vanhoof and Rafael Bello (2017) "**A Review on Methods and Software for Fuzzy Cognitive Maps**", Artificial Intelligence Review, August 2017.
- J10.** Gonzalo Nápoles, Rafael Falcon, Elpiniki Papageorgiou, Rafael Bello and Koen Vanhoof (2017) "**Rough Cognitive Ensembles**", International Journal of Approximate Reasoning, Vol 85, June 2017, pp. 79-96
- J9.** Gonzalo Nápoles, Rafael Falcon, Zoumpoulia Dikopoulou, Elpiniki Papageorgiou, Rafael Bello and Koen Vanhoof (2016) "**Weighted Aggregation of Partial Rankings using Ant Colony Optimization**". Neurocomputing, Vol 250, pp. 109-120.
- J8.** Yamisleydi Salgueiro, Jorge L. Toro, Rafael Bello and Rafael Falcon (2016) "**Multiobjective Variable Mesh Optimization**". Annals of Operations Research, Vol 5, 2016, pp. 1-25.
- J7.** Alexander Teske, Rafael Falcon and Amiya Nayak (2015) "**Efficient Detection of Faulty Nodes with Cuckoo Search in t-Diagnosable Systems**". Applied Soft Computing, Vol 29, pp. 52-64.
- J6.** Xu Li, Rafael Falcon, Amiya Nayak and Ivan Stojmenovic (2012) "**Servicing Wireless Sensor Networks by Mobile Robots**". IEEE Communications Magazine, Vol 50 No. 7, pp. 147-154.
- J5.** Rafael Falcon, Marcio Almeida, Rafael Bello and Amiya Nayak (2012) "**System-Level Fault Diagnosis with Dynamic Mesh Optimization**". Computing and Systems, Vol 16 No. 2, pp. 203-220.
- J4.** 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
- J3.** Benoît 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
- J2.** 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
- J1.** 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

BOOK CHAPTERS (11)

BC11. Rafael Bello and Rafael Falcon (2017) "**Rough Sets in Machine Learning: a Review**" In: Guoyin Wang, Andrzej Skowron, Yiyu Yao, Dominik Slezak and Lech Polkowski (eds) "Thriving Rough Sets", Studies in Computational Intelligence, to appear, Springer-Verlag.

BC10. Benjamin Desjardins, Rafael Falcon, Rami Abielmona and Emil Petriu (2016) "**Planning Robust Sensor Relocation Trajectories for a Mobile Robot with Evolutionary Multi-Objective Optimization**" In: Ajith Abraham, Rafael Falcon and Mario Koeppen (eds) "Computational Intelligence in Wireless Sensor Networks: Recent Advances and Future Challenges", Studies in Computational Intelligence, to appear, Springer-Verlag.

BC9. Gonzalo Nápoles, Isel Grau, Rafael Falcon, Rafael Bello and Koen Vanhoof (2016) "**A Granular Intrusion Detection System using Rough Cognitive Networks**" In: Rami Abielmona, Rafael Falcon, Nur Zincir-Heywood and Hussein Abbass (eds) "Recent Advances in Computational Intelligence in Defense and Security: Introductory Chapter", Chapter 7, pp. 169–191, Springer-Verlag.

BC8. Rami Abielmona, Rafael Falcon, Nur Zincir-Heywood and Hussein Abbass (2016) "**Recent Advances in Computational Intelligence in Defense and Security: Introductory Chapter**" In: Rami Abielmona, Rafael Falcon, Nur Zincir-Heywood and Hussein Abbass (eds) "Recent Advances in Computational Intelligence in Defense and Security: Introductory Chapter", Chapter 1, pp. 1–9, Springer-Verlag.

BC7. 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", 2nd Edition, Chapter 21, pp. 737–768, Wiley.

BC6. 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

BC5. 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

BC4. 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

BC3. 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

BC2. 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

BC1. 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.

CONFERENCE PAPERS (67)

C67. Alexander Teske, Rafael Falcon, Rami Abielmona and Emil Petriu (2018) "**Automatic Identification of Maritime Incidents from Unstructured Articles**", 2018 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA 2018), Boston, USA, June 11 - 14, 2018, to appear.

C66. Gerardo Felix, Gonzalo Napoles, Rafael Falcon, Rafael Bello and Koen Vanhoof (2018) "**Performance Analysis of Granular versus Traditional Neural Network Classifiers: Preliminary Results**", 2018 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurements Systems and Applications (CIVEMSA 2018), Ottawa, Canada, June 12-14, 2018, to appear.

C65. Tolulope Akinbulire, Rafael Falcon, Rami Abielmona and Howard Schwartz (2018) "**Responding to Illegal, Unreported and Unregulated Fishing with Evolutionary Multi-Objective Optimization**", 2018 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurements Systems and Applications (CIVEMSA 2018), Ottawa, Canada, June 12-14, 2018, to appear.

C64. Roman Palenichka, Rafael Falcon, Rami Abielmona and Emil Petriu (2018) "**A Computational Model of Multi-Scale Spatiotemporal Attention in Video Data**", 15th International Conference on Image Analysis and Recognition (ICIAR 2018), Povoá de Varzim, Portugal, June 27 - 29, 2018, to appear.

C63. Ibrahim Abualhaol, Rafael Falcon, Rami Abielmona and Emil Petriu (2018) "**Mining Port Congestion Indicators from Big AIS Data**", International Joint Conference on Neural Networks (IJCNN 2018), Rio de Janeiro, Brazil, July 8 - 13, 2018, to appear.

C62. Jean Berger, Emmanuel Giasson, Mihai Florea, Moufid Harb, Alexander Teske, Rami Abielmona, Rafael Falcon, Nassirou Lo and Emil Petriu (2018) "**A Graph-based Genetic Algorithm to Solve the Virtual Constellation Multi-Satellite Collection Scheduling Problem**", 2018 IEEE Congress on Evolutionary Computation (CEC), Rio de Janeiro, Brazil, July 8 - 13, 2018, to appear.

C61. Ashwin Panchapakesan, Rami Abielmona, Rafael Falcon and Emil Petriu (2018) "**Prediction of Container Damage Insurance Claims for Optimized Maritime Port Operations**", 31st Canadian Conference on Artificial Intelligence (CAI 2018), Toronto, Canada, May 8 - 11, 2018, to appear.

C60. Fatemeh Cheraghchi, Ibrahim Abualhaol, Rafael Falcon, Rami Abielmona, Bijan Raahemi and Emil Petriu (2017) "**Big-Data-Enabled Modelling and Optimization of Granular Speed-based Vessel Schedule Recovery Problem**", 2017 IEEE International Conference on Big Data, Special Session on Information Granulation in Data Science and Scalable Computing, Boston, USA, December 11 - 14, 2017, to appear.

C59. Tolulope Akinbulire, Howard Schwartz, Rafael Falcon and Rami Abielmona (2017) "**A Reinforcement Learning Approach to Tackle Illegal, Unreported and Unregulated**

Fishing", 2017 IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA), Hawaii, USA, November 27 - December 1, 2017, to appear.

C58. Alexander Teske, Rafael Falcon, Rami Abielmona and Emil Petriu (2017) "**Automating Maritime Risk Assessment with Genetic Fuzzy Systems**", 2nd International Symposium on Fuzzy and Rough Sets (ISFUROS), Santa Maria Key, Cuba, October 24 - 26, 2017, to appear.

C57. Marilyn Bello, Gonzalo Nápoles, Ivett Fuentes, Isel Grau, Rafael Falcon, Rafael Bello and Koen Vanhoof (2017) "**A Fuzzy Activation Mechanism for Rough Cognitive Ensembles**", 2nd International Symposium on Fuzzy and Rough Sets (ISFUROS), Santa Maria Key, Cuba, October 24 - 26, 2017, to appear.

C56. Roman Palenychka, Rafael Falcon, Rami Abielmona and Emil Petriu (2017) "**Extraction of Spatiotemporal Descriptors for Maritime Vessel Detection using Attentive Sensing**", British Machine Vision Conference (BMVC 2017) - 5th Activity Monitoring by Multiple Distributed Sensing (AMMDS) Workshop, London, UK, September 4-7, 2017, to appear.

C55. Nicolas Primeau, Rami Abielmona, Rafael Falcon and Emil Petriu (2017) "**Risk-Aware Vessel Routing using Multi-Objective Ant Colony Optimization**", 24th International Conference on Multiple Criteria Decision Making (MCDM 2017), Ottawa, Canada, July 10-14, 2017, to appear.

C54. Rafael Falcon, Rami Abielmona, Benjamin Desjardins and Emil Petriu (2017) "**Fuzzy/Human Risk Analysis for Maritime Situational Awareness and Decision Support**", 2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Naples, Italy, July 9-12, 2017, to appear.

C53. Nicolas Primeau, Rafael Falcon, Rami Abielmona and Emil Petriu (2017) "**Continuous Risk-Aware Response Generation for Maritime Supply Chain Disruption Mitigation**", 2017 International Conference on Distributed Computing in Sensor Systems (DCOSS), Ottawa, Canada, June 5-7, 2017, to appear.

C52. Alex Plachkov, Rami Abielmona, Moufid Harb, Rafael Falcon, Diana Inkpen, Voicu Groza and Emil Petriu (2017) "**Soft-Data-Driven Resource Management for Concurrent Maritime Security Operations**", 2017 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA), Savannah, USA, March 27-31, 2017, to appear.

C51. Nicolas Primeau, Rami Abielmona, Rafael Falcon and Emil Petriu (2017) "**Maritime Smuggling Detection and Mitigation using Risk-Aware Hybrid Robotic Sensor Networks**", 2017 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA), Savannah, USA, March 27-31, 2017, to appear.

C50. Rafael Falcon, Benjamin Desjardins, Rami Abielmona and Emil Petriu (2016) "**Context-Driven Dynamic Risk Management for Maritime Domain Awareness**", 2016 IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA), Athens, Greece, December 6 - 9, 2016.

C49. Frank Vanhoenshoven, Gonzalo Nápoles, Rafael Falcon, Koen Vanhoof and Mario Köppen (2016) "**Detecting Malicious URLs using Machine Learning Techniques**", 2016 IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA), Athens, Greece, December 6 - 9, 2016.

C48. Nicolas Primeau, Rafael Falcon, Rami Abielmona, Voicu Groza and Emil Petriu (2016) "**Improving Task Allocation in Risk-Aware Robotic Sensor Networks via Auction Protocol Selection**", 20th IEEE International Conference on Intelligent Engineering Systems 2016 (INES), Budapest, Hungary, June 30 - July 2, 2016.

- C47.** Alex Plachkov, Rami Abielmona, Moufid Harb, Rafael Falcon, Diana Inkpen, Voicu Groza and Emil Petriu (2016) "**Automatic Course of Action Generation using Soft Data for Maritime Domain Awareness**", 2016 Genetic and Evolutionary Computation Conference (GECCO) - SecDef Workshop, Denver, USA, July 20-24, 2016, pp. 1071-1078.
- C46.** Benjamin Desjardins, Rafael Falcon, Rami Abielmona and Emil Petriu (2015) "**Reliable Multiple Robot-Assisted Sensor Relocation using Multi-Objective Optimization**", 2016 IEEE Congress on Evolutionary Computation (CEC), Vancouver, Canada, July 24-29, 2016, pp. 4476-4485.
- C45.** Gonzalo Nápoles, Rafael Falcon, Elpiniki Papageorgiou, Rafael Bello and Koen Vanhoof (2016) "**Partitive Granular Cognitive Maps to Graded Multilabel Classification**", 2016 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Vancouver, Canada, July 24-29, 2016, pp. 1363-1370.
- C44.** Yamisleydi Salgueiro, José L. Velázquez, Rafael Bello, Rafael Falcon and Ann Nowé (2016) "**Multi-objective Model for Ferro Alloy Additions in Stainless Steel Production**", 12th International Conference on Operations Research (ICOR), Havana, Cuba, March 8-11, 2016.
- C43.** Benjamin Desjardins, Rafael Falcon, Rami Abielmona and Emil Petriu (2015) "**A Multi-Objective Optimization Approach to Reliable Robot-Assisted Sensor Relocation**", 2015 IEEE Congress on Evolutionary Computation (CEC), Sendai, Japan, May 25-28, 2015, pp. 956-964.
- C42.** Ricardo Navarro, Rafael Falcon, Tadahiko Murata and Chyon Hae Kim (2015) "**A Generic Niching Framework for Variable Mesh Optimization**", 2015 IEEE Congress on Evolutionary Computation (CEC), Sendai, Japan, May 25-28, 2015, pp. 1994-2001.
- C41.** Jamieson McCausland, Rami Abielmona, Rafael Falcon and Emil Petriu (2015) "**Risk-Aware Sensor Networks for Critical Infrastructure Monitoring**", 11th International Conference on Shock and Impact Loads on Structures (SILOS 2015), Ottawa, Canada, May 14-15, 2015, pp. 295 - 304.
- C40.** Lenniet Coello, Yaima Filiberto, Rafael Bello and Rafael Falcon (2015) "**Improving the IRBASIR Algorithm with Bayesian Networks**", 5th International Workshop on Knowledge Discovery, Knowledge Management and Decision Support (EUREKA), Mexico City, Mexico, April 21-24, 2015.
- C39.** Rafael Falcon, Rami Abielmona and Sean Billings (2015) "**Risk-Driven Intent Assessment and Response Generation in Maritime Surveillance Operations**", 2015 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), Orlando, FL, USA, March 9-12, 2015, pp. 151-157.
- C38.** Rafael Falcon, Rami Abielmona, Sean Billings, Alex Plachkov and Hussein Abbas (2014) "**Risk Management with Hard-Soft Data Fusion in Maritime Domain Awareness**", 7th IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA), Hanoi, Vietnam, December 14-17, 2014, pp. 1-8.
- C37.** Yumilka Fernandez, Lenniet Coello, Yaima Filiberto, Rafael Bello and Rafael Falcon (2014) "**Learning Similarity Measures from Data with Fuzzy Sets and Particle Swarms**", 11th International Conference on Electrical Engineering, Computer Science and Automatic Control (CCE), Ciudad del Carmen, Mexico, September 29- October 3, 2014, pp. 296-301.
- C36.** Rami Abielmona, Rafael Falcon, Paris Vachon and Voicu Groza (2014) "**Vessel Tracking and Anomaly Detection using Level 0/1 and High-Level Information**"

- Fusion Techniques**", 6th International Workshop on Soft Computing Applications (SOFA), Timisoara, Romania, July 24-26, 2014.
- C35.** Rafael Falcon, Rami Abielmona and Erik Blasch (2014) "**Behavioral Learning of Vessel Types with Fuzzy-Rough Decision Trees**", 17th International Conference on Information Fusion (FUSION), Salamanca, Spain, July 7-11, 2014, to appear.
- C34.** Jamieson McCausland, Rami Abielmona, Rafael Falcon, Ana-Maria Cretu and Emil Petriu (2014) "**On the Role of Multi-Objective Optimization in Risk Mitigation for Critical Infrastructures with Robotic Sensor Networks**", 2014 Genetic and Evolutionary Computation Conference (GECCO) Workshops, Vancouver, Canada, July 12-16, 2014, pp. 1269-1276.
- C33.** Hang Shao, Rami Abielmona, Rafael Falcon and Nathalie Japkowicz (2014) "**Vessel Track Correlation and Association using Fuzzy Logic and Echo State Networks**", 2014 IEEE Congress on Evolutionary Computation (CEC), Beijing, China, July 6-11, 2014, to appear.
- C32.** Amir Razavi, Diana Inkpen, Rafael Falcon and Rami Abielmona (2014) "**Textual Risk Mining for Maritime Situational Awareness**", 2014 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), San Antonio, TX, USA, March 3-6, 2014, pp. 167-173.
- C31.** Gonzalo Nápoles, Isel Grau, Rafael Bello, Rafael Falcon and Ajith Abraham (2013) "**Self-Adaptive Differential Particle Swarm using a Ring Topology for Multimodal Optimization**", 2013 International Conference on Intelligent Systems Design and Applications (ISDA), Serdang, Malaysia, December 8-10, 2013, pp. 35 - 40.
- C30.** Jamieson McCausland, Rami Abielmona, Rafael Falcon, Ana-Maria Cretu and Emil Petriu (2013) "**Auction-based Node Selection of Optimal and Concurrent Responses for a Risk-Aware Robotic Sensor Network**", IEEE International Symposium on Robotic and Sensor Environments (ROSE), Washington DC, USA, October 21-23, 2013, pp. 136-141.
- C29.** Ricardo Navarro, Rafael Bello, Rafael Falcon and Ajith Abraham "**Niche-Clearing-based Variable Mesh Optimization for Multimodal Problems**", 5th World Congress on Nature and Biologically Inspired Computing (NaBIC), Fargo, USA, August 12 - 14, 2013, pp. 161 - 168.
- C28.** Jamieson McCausland, George Di Nardo, Rafael Falcon, Rami Abielmona, Voicu Groza and Emil Petriu (2013) "**A Proactive Risk-Aware Robotic Sensor Network for Critical Infrastructure Protection**", IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Milan, Italy, July 15 - 17, 2013, pp. 132 - 137
- C27.** Rafael Falcon, Rami Abielmona and Amiya Nayak (2012) "**An Online Shadowed Clustering Algorithm Applied to Risk Visualization in Territorial Security**", 2012 IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA), Ottawa, Canada, July 11-13, 2012, pp. 1 - 8.
- C26.** 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, pp. 150 - 157.
- C25.** 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, pp. 1540 - 1547.
- C24.** 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, pp. 6436 – 6440.
- C23.** 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.
- C22.** 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.
- C21.** Rafael Falcon, Benoît Depaire and An Caris (2011) "**The One-Commodity Traveling Salesman Problem with Selective Pickup and Delivery**", 25th Conference of the Belgian Operations Research Society (ORBEL 25), Ghent, Belgium
- C20.** 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.
- C19.** 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.
- C18.** 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.
- C17.** Rafael Falcon, Xu Li and Amiya Nayak (2010) "**Carrier-Based Coverage Augmentation in Wireless Sensor and Robot Networks**", 30th IEEE Int'l Conference on Distributed Computing Systems, Genoa, Italy, June 21 – 25, 2010, pp. 234 – 239.
- C16.** 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
- C15.** 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.
- C14.** Rafael Falcon, Benoît Depaire, Koen Vanhoof and Ajith Abraham (2008) "**Towards a Suitable Reconciliation of the Findings in Collaborative Fuzzy Clustering**". 8th International Conference on Intelligent Systems Design and Applications – ISDA 2008, Taiwan, IEEE CS Press, USA, ISBN 978-0-7695-3382-7, pp. 652-657
- C13.** 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
- C12.** 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
- C11.** 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)

- C10.** 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)
- C09.** 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)
- C08.** Yanet Rodríguez, Rafael Falcon, Alain Varela, María M García (2006) "**Learning Membership Functions for an Associative Fuzzy Neural Network**", Proceedings of the 1st International Symposium on Fuzzy and Rough Sets (ISFUROS 2006), Editorial Feijoo, ISBN 959-250-308-7, 67 – 68
- C07.** 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
- C06.** 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
- C05.** 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
- C04.** 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
- C03.** 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
- C02.** 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
- C01.** 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

JOURNAL EDITORSHIP

- Editorial Board Member, **Applied Soft Computing** (2016 – present)
- Associate Editor, **Ad Hoc & Wireless Sensor Networks** (2012 – present)

TECHNICAL REVIEWS – JOURNALS AND CONFERENCES

Journals

- **IEEE Transactions on Cybernetics** (2013, 2014, 2017, 2018)
- **Information Sciences** (2010-2011, 2013-2015, 2017, 2018)

- **International Journal of Computational Intelligence Systems** (2017)
- **Applied Soft Computing** (2012 - 2017)
- **ACM Transactions on Autonomous and Adaptive Systems** (2017)
- **International Journal of Data Science and Analytics** (2017)
- **Pattern Recognition** (2010, 2012, 2014, 2017)
- **IEEE Transactions on Evolutionary Computation** (2008, 2010, 2012, 2015-2017)
- **IEEE Transactions on Industrial Informatics** (2011, 2017)
- **Neural Computing and Applications** (2017)
- **Granular Computing** (2016)
- **IEEE Transactions on Parallel and Distributed Systems** (2010 – 2012, 2016)
- **International Journal of Distributed Sensor Networks** (2011, 2016)
- **Computers & Industrial Engineering** (2016)
- **Pattern Recognition Letters** (2016)
- **Engineering Applications of Artificial Intelligence** (2015)
- **IETE Technical Review** (2015)
- **Ad Hoc Networks** (2014-2015)
- **IEEE Transactions on Mobile Computing** (2014)
- **Sensors** (2014)
- **Soft Computing** (2013)
- **IEEE Network** (2013)
- **Ad Hoc & Sensor Wireless Networks** (2012, 2013)
- **IEEE Transactions on Systems, Man and Cybernetics, Part B** (2010 – 2012)
- **ACM Transactions on Sensor Networks** (2012)
- **EURASIP Journal on Wireless Communications and Networking** (2010, 2012)
- **Int'l Journal of Communication Networks and Distributed Systems** (2012)
- **Elsevier Journal on Computer Communications** (2012)
- **European Transactions on Telecommunications** (2011)
- **International Journal of Systems Science** (2010, 2011)
- **Revista de la Facultad de Ingeniería, Universidad de Antioquía, Colombia** (2010)
- **International Journal of Computer and Applications** (2008, 2010)
- **Elsevier Journal of Decision Support Systems** (2010)
- **IEEE Transactions on Automatic Control** (2010)
- **IEEE Transactions on Systems, Man and Cybernetics, Part A** (2007)
- **Journal of Advances in Fuzzy Systems** (2007)

Conferences

- **IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)** [2018 Rio de Janeiro, Brazil]
- **IEEE Congress on Evolutionary Computation (CEC)** [2018 Rio de Janeiro, Brazil] [2017 San Sebastián, Spain] [2015 Sendai, Japan] [2014 Beijing, China] [2013 Cancun, Mexico] [2012 Brisbane, Australia]
- **IEEE Symposium Series on Computational Intelligence (SSCI)** [2017 Hawaii, USA] [2014 Orlando, USA], [2013 Singapore]
- **International Conference on Ad Hoc Networks & Wireless (ADHOC-NOW)** [2017 Messina, Italy] [2016 Lille, France] [2015 Athens, Greece] [2014 Benidorm, Spain] [2013 Wroclaw, Poland] [2012 Belgrade, Serbia]
- **6th IEEE Annual International Workshop on Mission-Oriented Wireless Sensor**

and Cyber-Physical System Networking (MiSeNet 2017) [2017 Atlanta, USA] [2016 San Francisco, USA]

- **International Conference on Soft Computing and Pattern Recognition (SocPaR)** [2016 Vellore, India] [2015 Fukuoka, Japan] [2014 Tunis, Tunisia]
- **IEEE Electrical Power and Energy Conference (EPEC)** [2016 Ottawa, Canada]
- **International Workshop on Data Mining for Cyber Security (DMCS)** [2016 Barcelona, Spain]
- **IEEE World Congress on Computational Intelligence – Special Session on Computational Intelligence for Security, Surveillance and Defense (CISSD)** [2016 Vancouver, Canada] [2012 Brisbane, Australia]
- **International Conference on Informatics and Computer Sciences (CICCI)**, [2016 Havana, Cuba] [2013 Havana, Cuba]
- **IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet)** [2016 Istanbul, Turkey]
- **World Congress on Nature and Biologically Inspired Computing (NaBIC)** [2015 Pietermaritzburg, South Africa] [2014 Porto, Portugal]
- **International Conference on Information Science and Applications (ICISA)**, [2015 Pattaya, Thailand]
- **IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA)** [2014 Hanoi, Vietnam], [2012 Ottawa, Canada]
- **International Workshop on Soft Computing Applications (SOFA)** [2014 Timisoara, Romania]
- **IEEE Canadian Conference on Electrical and Computer Engineering (CEECE)** [2014 Toronto, Canada]
- **International Conference on Distributed Computing Systems (ICDCS), Cyber-Physical Networking Symposium (CPNS)** [2013 Philadelphia, USA]
- **International Conference on Connected Vehicles and Expo (ICCVE)** [2013 Las Vegas, USA]
- **World Congress on Information and Communication Technologies (WICT)** [2013 Hanoi, Vietnam]
- **International Symposium on Intelligent Systems Techniques for Ad Hoc and Wireless Sensor Networks (IST-AWSN)** [2013 Halifax, Canada] [2012 Niagara Falls, Canada] [2011 Niagara Falls, Canada]
- **IEEE International Conference on Cybernetics (CYBCONF)** [2013 Lausanne, Switzerland]
- **IEEE International Parallel & Distributed Processing Symposium (IPDPS)**, [2013 Boston, USA]
- **IEEE Global Communications Conference (GLOBECOM), Ad-Hoc and Sensor Networking Symposium** [2013 Atlanta, USA] [2012 Anaheim, USA] [2010 Miami, USA]
- **International Conference on Computer Communications and Networks (ICCCN)** [2013 Nassau, Bahamas]
- **IEEE Conference on Decision and Control (CDC)** [2012 Maui, USA]
- **IEEE International Conference on Communications (ICC)** [2012 Ottawa, Canada (International Workshop on Wireless Sensor, Actor and Actuator Networks, WSAAN)] [2009 Dresden, Germany (Ad Hoc and Sensor Networking Symposium, AHSN)]
- **IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS)** [2011 Valencia, Spain] [2010 San Francisco, USA]
- **International Workshop on Semantic Interoperability (IWSI)** [2011 Rome, Italy]

- **International Workshop on Semantic Sensor Web (SSW)** [2010]
- **International Conference on Frontier of Computer Science and Technology (FCST)** [2010 Changchun, China]
- **IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)** [2009 Rome, Italy]
- **Mexican Conference on Artificial Intelligence (MICAI)** [2008 Atizapán de Zaragoza, Mexico]
- **International Symposium on Fuzzy and Rough Sets (ISFUROS)** [2006 Santa Clara, Cuba]

CONFERENCE AND WORKSHOP ORGANIZATION

- **International Symposium on Fuzzy and Rough Sets (ISFUROS)** [2017 Santa Maria Key, Cuba (General Co-Chair)] [2006 Santa Clara, Cuba (Executive Secretary)]
- **IEEE Symposium on Computational Intelligence for Security and Defense Applications (CISDA)** [2016 Athens, Greece (Symposium Chair)] [2012 Ottawa, Canada (Local Arrangements Chair)]
- **IEEE World Congress on Computational Intelligence: Special Session on Computational Intelligence for Security, Surveillance and Defense (CISSD)** [2014 Beijing, China (Co-organizer)]
- **International Workshop on Wireless Sensor, Actuator and Robot Networks (WiSARN)** [2014 Benidorm, Spain (Submission Chair)] [2013 Cambridge, USA (Submission Chair)] [2012-Fall Las Vegas, USA (Submission Chair)] [2012-Spring Hangzhou, China (Submission Chair)] [2011-Fall Valencia, Spain (Submission Chair)] [2011-Spring Shanghai, China (Submission Chair)] [2010-Fall Hangzhou, China (Submission Chair)] [2010-Spring Montreal, Canada (Submission Chair)]
- **International Workshop on Internet of Vehicles (IoV)** [2014 Zhangjiajie, China (Publicity Co-chair)]
- **IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS)** [2014 Marina del Rey, USA (Proceedings Chair)] [2013 Cambridge, USA (Proceedings Chair)] [2011 Barcelona, Spain (Proceedings Chair)]
- **International Conference on Ubiquitous Context-Awareness and Wireless Sensor Networks (UCAWSN)** [2013 Jeju, Korea (Publicity Co-chair)]
- **FTRA International Conference on Future Information Technology (FutureTech)** [2013 Gwanju, Korea (Publicity Co-chair)]
- **International Conference on Ad Hoc Networks and Wireless (ADHOC-NOW)** [2012 Belgrade, Serbia (Publication Chair)]
- **Ibero-American School on Fuzzy and Rough Sets (ESICBA)** [2008 Santa Clara, Cuba (Executive Secretary)]

INVITED TALKS

- ***“Machine Learning meets Granular Computing: the emergence of granular models in the Big Data era”***, Machine Learning and Artificial Intelligence Ottawa Meetup, February 26, 2018, Ottawa, Canada

- **“Vessel Tracking and Anomaly Detection using Level 0/1 and High-Level Information Fusion Techniques”**, 9th Advanced Synthetic Aperture Radar (ASAR) Workshop, Canadian Space Agency, Montreal, Canada
- **“An Evolving Risk Management Framework for Wireless Sensor Networks and its Application to Environment Monitoring”**, Larus Technologies Corporation, Ottawa, Canada
- **“Nature-Inspired Optimization in Fault-Reactive Wireless Sensor and Robot Networks”**, IEEE CIS Ottawa Chapter, Canada
- **“Carrier-Based Coverage Repair and Formation Protocols in Wireless Sensor and Robot Networks”**, Team SITE, University of Ottawa, Canada
- **“Artificial Ant Colonies for Coverage Repair in Wireless Sensor and Robot Networks”**, IMOB, Hasselt Universiteit, Belgium
- **“Multiobjective Particle Swarm Optimization Approaches in Knowledge-Based Clustering”**, Artificial Intelligence Lab, UCLV, Cuba
- **“Maintaining Fault-Tolerant Networks of Robots to Support Wireless Sensor Networks”**, MODO, Universidad de Granada, Spain

INDUSTRIAL EXPERIENCE

- 2014/03 – present: Research Scientist with Larus Technologies Corporation
 - Predictive analytics with maritime Automatic Identification System (AIS) data, radar data, weather data, social media, etc.
 - Risk management and automatic generation of courses of action (via metaheuristic optimization) to respond to incidents in the monitoring region
 - High-level information fusion, natural language processing
- 2012/04 – 2014/03 **NSERC IRDF** with Larus Technologies Corporation
- 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”*.

SOFTWARE DEVELOPMENT EXPERIENCE

- Big Data Technologies
 - Hadoop, Spark, Splunk, Mahout, D3, Tableau (beginner level)
- Markup and Programming Languages:
 - R, Java, C#.NET, VB.NET, MATLAB, C++, VBA, Assembly Language
 - HTML, XML
- Database Technologies and Tools
 - MySQL, PostgreSQL, SQL Server, pgAdmin
- IDEs and Other Software Development Tools
 - Eclipse, NetBeans, Visual Studio .NET

- Dreamweaver, Kompozer
- Mantis Bug Tracker, JIRA
- SVN, Mercurial, Git

AWARDS & SCHOLARSHIPS

- 2014, Nov 11th: **MITACS & NRC-IRAP Award for Commercialization**
- 2012, Jun 7th: **Dean's Scholarship** of the Faculty of Graduate and Postdoctoral Studies of the University of Ottawa.
- 2012, Mar 10th: **MITACS Elevate Postdoctoral Fellowship** (declined)
- 2012, Feb 7th: **Industrial Research & Development Fellowship** (IRDF) awarded by the Natural Sciences & Engineering Research Council (NSERC) with Larus Technologies Corporation as the industrial partner.
- 2012, Jan 11th: Ontario Centers of Excellence (OCE)'s **First Job** award with Larus Technologies Corporation as the industrial partner.
- 2011, Aug 23th: **MITACS Accelerate PhD Fellowship** awarded to the project "*Online Risk-Driven Management Framework for Territorial Security in Wireless Sensor and Robot Networks*".
- 2011, May 12th: **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 12th: **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 15th: **MITACS Accelerate PhD Fellowship** awarded to "*Risk-Driven Coverage Formation for Environment Monitoring in Wireless Sensor and Robot Networks*".
- 2010, June 9th: **IEEE CIS Student Travel Grant** awarded for participation at the 2010 World Congress on Computational Intelligence (WCCI 2010), Barcelona, Spain.
- 2010, Feb 4th: **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.