# JUAN CARLOS OLGUIN

## PHYSICS/COMPUTER ENGINEERING

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## SUMMARY


Maturity in theoretical and experimental research in the areas of condensed matter physics and computer science. +5 years of experience as software developer and +3 years as IT Leader developing software/hardware solutions for industry.


## EDUCATION

**BS (Honours) in Physics**, Mathematics Minor, University of Manitoba, 2012.

- GPA: 3.1/4.5.
- Thesis: An improved experimental method in the characterization of the FMR response for $Fe_2O_3$ nanoparticles.
- Awards: International Undergraduate Student Scholarship, 2012.

**BS in Computer Systems Engineering**, ITESM-CCM, Mexico City, 2005.

- GPA: 88/100.
- Awards: “Academic Talent” scholarship (bursary with value of the 35% of the full degree), 2000.

**Relevant course work**.

- Computational Physics.
- Computing Mathematics.
- Algorithm Analysis.
- Intelligent Systems.

## EXPERIENCE AND RELEVANT PROJECTS

**Research Assistant**, University of Manitoba Physics Department (Astronomy), Winnipeg MB.
May 2012 – Present, Advisor: Dr. Jason Fiege.

- Pursue independent and collaborative research in the development of a computational model for bipolar outflows in lines of carbon monoxide (CO).
- Formulate approaches to implement a highly-efficient model to study real astronomical data on a parallelized environment; compare the accuracy with simulated data.

**Honours Thesis,** University of Manitoba Dynamic Spintronics Group, Winnipeg MB.
September 2011 – April 2012, Advisor: Dr. Can-Ming Hu.

- Developed and implemented a novel experimental method to study FMR phenomena on the nanometer scale, significantly increasing the signal-to-noise ratio.
- Compared the characterization of the FMR response of $Fe_2O_3$ nanoparticles for different geometrical arrangements of the sample.

**Computational Physics Project,** University of Manitoba Physics Department, Winnipeg MB.
Winter 2012, Advisor: Dr. Jason Fiege.

- Developed an efficient image recognition algorithm to detect undiscovered galaxies on astronomical surveys.

**Student Research Assistant,** University of Manitoba Dynamic Spintronics Group, Winnipeg MB.
February 2011 – June 2011, Supervisor: Dr. Yongsheng Gui.

- Proposed an imaging algorithm to translate the DC output of a microwave scanner for potential use on medical applications.
- Developed a control system software in VB and Matlab for many apparatus with GPIB support; implemented the automatic data retrieval, analysis and graphical presentation.

**Intelligent Systems Project**, ITESM-CCM Engineering Department, Mexico, D.F.
Winter 2005, Supervisor: Dr. Alvaro de Albornoz.

- Implemented decision making techniques using unsupervised learning neural networks; evaluated the efficiency of the algorithm applied to large datasets.
- Compared the performance of genetic algorithms with different crossover implementations to determine the optimal solution of equations analytically unsolvable.

## INDUSTRY EXPERIENCE

**Software Developer,** Great West Life, October 2012 – December 2012.

- Assist in the evaluation and development of the software platform used by the real estate investment advisor area, used for data management, research and forecasting.

**IT Analyst**, CanTalk Canada, December 2011 – Present

- Develop automated control systems for the communications infrastructure. Assist in the methodologies and data discovery for statistical forecasting models.

**IT Leader**, Blockbuster, Mexico D.F. May 2010 – August 2010

- Managed the IT and design team, a total of 10 people. Designed and developed the back-bone sales system used national wide and implemented the software-hardware scanner interface for discount vouchers and gift cards.

**IT Leader**, CAPSI (IT Consultancy), December 2006 – August 2009

- Developed a control system application for industrial scales, providing integration with sales software platforms.
- Designed and implemented a live position tracking application for door-to-door salesmen using GPS technologies.
- Coordinated the IT team to design and implement enterprise resource planning software platforms for Coca-Cola FEMSA and BMW Mexico.

**IT Analyst**, General Electric Finance, Fall 2005

- Assisted in the design and implementation of business intelligence applications.
- Proposed and developed a monolithic core software platform for the business process automation.

## TECHNICAL SKILLS

- Advance knowledge on programming languages: Matlab, Java, C#, C++, VB 6.0, VB.NET, PHP, JSP.
- Data analysis software, measurement and control systems: Origin, LabView.
- Ample experience developing control systems for GPIB and serial based apparatus.

## VOLUNTEER WORK

- Co-founder/president, Latin American Student Association, University of Manitoba, 2012.
- Co-founder/president, Student Research Association, ITESM-CCM, 2004.