

# Manuel Gil

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## Language Skills

Fluency in English and Spanish (mother tongue), intermediate knowledge of French.

## Education

**Ph. D. Student**, School of Information Studies, Data Mining and Security (DMaS) Lab, McGill University, 2014-Present.

French as a Second Language Student (level 3/6 completed), Centre Saint-Louis, Montreal, 2014.

**M. A. Sc. Engineering Physics**, McMaster University, 2013.

Thesis: Analytical Modelling of Isotype Heterojunctions.

**M. Sc. Mathematics**, Queen's University, 2011.

Thesis: On Rényi Divergence Measures for Continuous Alphabet Sources.

**H.B.Sc. Applied Mathematics** (Mathematical Sciences), The University of Western Ontario, 2008.

## Selected Awards and Scholarships

NSERC PGS-D (36 months), 2014. Value 63,000 CAD.

2013 Hydro-Québec scholarship (bourse d'études supérieures Hydro-Québec), École Polytechnique de Montréal (declined). Value: 21,000 CAD.

Ontario Graduate Fellowship, McMaster University, 2012. Value: 12,000.00 CAD.

Entrance Scholarship, Engineering Physics, McMaster, 2011. Value: 5000.00 CAD.

NSERC USRA (Undergraduate Student Research Awards), 2008. Value: 4500.00 CAD plus organization contribution. Held at The University of Western Ontario, Department of Applied Mathematics.

NSERC USRA, 2006. Value: 4500.00 CAD plus organization contribution. Held at The University of Western Ontario, Physics and Astronomy Department.

The Laurene Paterson Estate Scholarships, The University of Western Ontario, 2005. Value: 4000.00 CAD.

Garnet Alexander Woonton Scholarship, The University of Western Ontario, 2005. Value: 3000.00 CAD.

Western Scholarship of Distinction, The University of Western Ontario, 2004. Value: 1000.00 CAD.

## Refereed Publications

### *Published*

**M. Gil**, JingfengYang, and R. N. Kleiman, “Analytical Expression for Thermionic Transport through Isotype Heterojunction Interfaces of Arbitrary Doping Ratio”, *Transactions on Electron Devices, IEEE*, 61, p.198-201, 2014.

**M. Gil**, F. Alajaji, and T. Linder, “Rényi divergence measures for commonly used continuous univariate distributions”, *Information Sciences*, 249, p. 124-131, 2013.

J. Tanguay, **M.Gil**, D. J. Jeffrey, and S.R. Valluri, “D-dimensional Bose Gases and The Lambert W function”, *Journal of Mathematical Physics*, 51, 123303, 2010.

S.R. Valluri, **M.Gil**, D. Jeffrey, and S. Basu, “The Lambert W Function and Quantum Statistics”, *Journal of Mathematical Physics*, 50, 102103, 2009.

### *In Progress*

Shantanu Basu and **M. Gil**, “A Modification of the Lognormal Distribution to Include a Power Law Tail: The MLP Distribution”, 2014.

## Contributed Talks

**M. Gil**, JingfengYang, and R. N. Kleiman, “Analytical modelling of isotype heterojunctions and solar cell applications”, Next Generation Solar Photovoltaics Canada, national conference, 2013.

Valluri, S. R., **M. Gil**, Jeffrey D. J., and S. Basu, “The Lambert W function and quantum statistics”, CAIMS Annual Meeting, national conference, 2009.

## Software and Programming Proficiencies

MATLAB, Maple, R, Java, Python, LaTeX, and elements of C, SQL, Visual Basic, and HTML.

## Employment History

Teaching Assistant, Research Assistant, Engineering Physics Dept., McMaster University, 2011-2013.

Performed analytical and numerical studies of heterojunctions and solar cell applications.

Teaching Assistant, Research Assistant, Mathematics and Statistics Dept., Queen's University, 2009-2011.

Performed an analytical study of Rényi divergences for univariate continuous distributions.

Research Assistant, The University of Western Ontario, Physics Dept., Applied Mathematics Dept., Philosophy Dept. 2005-2009.

Performed an analytical study of a three parameter univariate distribution in star formation (2009).

Applied the Lambert W function to analytically solve problems in statistical Physics (2008).

Contributed to the analytical study of gravitational wave signal processing models (2006).

Processed and edited manuscripts with LaTeX and provided website maintenance (2005-2007).

### *Teaching Experience*

#### **McMaster University**

Engineering Economics, Teaching Assistant, Winter 2012.

Mathematics for Engineering I, Review Session Instructor, Fall 2011.

Mathematics Help Centre, Teaching Assistant - Fall 2011.

**Queen's University**

Mathematics Help Centre, Coordinator, 2010-2011.

Mathematics Help Centre, Teaching Assistant, 2009-2011.

Calculus for Students in Biology and Life Sciences, Tutorial Leader, Winter 2009.

**Other**

Private tutor for more than 8 years in mathematics (pure and applied) physics, statistics, and logic.