- Nationality: Canadian
- Present Position: (since October 2007) CQIQC Fellow at the University of Toronto, Canada.
- Academic studies:
  - **(2002 to 2007)** Ph.D. Student under the supervision of Raymond Laflamme at the University of Waterloo and the Perimeter Institute, Ontario, Canada.
  - **(1999-2002)** Undergraduate in Honors Math-Physics at McGill University, Canada.
- Articles Published in Refereed Journal:
  - **J.-C. Boileau**, L. Sheridan, M. Laforest, S. D. Bartlett, "Quantum Reference Frames and the Classification of Rotationally-Invariant Maps", *J. Math. Phys.* **49**, 032105 (2008).
  - M. Laforest , D. Simon, **J.-C. Boileau**, J. Baugh, R. Laflamme, "Using error correction to determine the noise model", *Phys. Rev. A*, **75**, 012331 (2007).
  - T.-Y. Chen, J. Zhang, **J.-C. Boileau**, X.-M. Jin, B. Yang, Q. Zhang, T. Yang, R. Laflamme, J.-W. Pan, "Experimental Quantum Communication without Shared Reference Frame", *Phys. Rev. Lett.* **96** 150504 (2006).
  - C.A.Ryan, M.Laforest, **J.-C. Boileau**, R.Laflamme, "Experimental Implementation of Discrete Time Quantum Random Walk on an NMR Quantum Information Processor, *Phys. Rev. A*, **72**, 062317 (2005).
  - **J.-C. Boileau**, J. Batuwantudawe, R. Laflamme, "Higher Security Thresholds for Quantum Key Distribution by Improved Analysis of Dark Counts, *Phys. Rev. A*, **72** 032321 (2005).
  - **J.-C. Boileau**, K. Tamaki, J. Batuwantudawe, R. Laflamme, J.M. Renes, "Unconditional Security of Three State Quantum Key Distribution Protocols", *Phys. Rev. Lett.* **94** 040503 (2005).
  - **J.-C. Boileau**, R. Laflamme, M. Laforest, C. R. Myers, "Robust Quantum Communication Using A Polarization-Entangled Photon Pair", *Phys. Rev. Lett.* **93** 220501 (2004).
  - **J.-C. Boileau**, D. Gottesman, R. Laflamme, D. Poulin, R.W. Spekkens, "Robust polarization based quantum key distribution over collective- noise channel", *Phys. Rev. Lett.* **92** 017901 (2004).
- Articles Submitted:
  - J.M.Renes, **J.-C. Boileau**, "Physical Underpinnings of Privacy", *ArXiv:0803.396*, submitted to *Phys. Rev. A* (2008).
- Non-Refereed Contributions:

  Contributed talks:
  - *" Quantum Reference Frames and the Classification of Rotationally-Invariant Maps"* presented at the 11th workshop on Quantum Information Processing held at the India International Centre in New Delhi (India, 2007).
  - *"Performance of The Three State Quantum Key Distribution Protocol"* presented at the 8th workshop on Quantum Information Processing held at MIT (USA, 2005).
  - *"Polarization-Based Quantum Key Distribution Without Shared Reference Frame"* presented at the Quantum Information and Quantum Control Conference at the Field Institute in Toronto (Canada, 2004).

Poster presentations:

- *"Security Proof Based on Twisted-Ebit Distillation For QKD"* presented at the 10th workshop on Quantum Information Processing in Brisbane (Australia, 2007).
- *"Higher Security Thresholds for Quantum Key Distribution by Improved Analysis of Dark Counts"* presented at Quantum Physics of Nature & 6th European QIPC Workshop held at the University of Vienna (Austria, 2005), and at the summer school on quantum information in Kochi (Japan, 2005).
- *"Polarization-Based Quantum Key Distribution Without Shared Reference Frame"*, presented at the workshop on Reference Frames and Superselection Rules in Quantum Information Theory at the Perimeter Institute in Waterloo (Canada, 2004).
- *"Polarization-Based Quantum Key Distribution Using Noiseless Subsystem"*, presented at the Summer School on Quantum Information Science at the University of Calgary (Canada, 2003), at the International Conference on Laser Spectroscopy in Palm Cove (Australia , 2003).

Other Talks:

- *"Physical Underpinnings of Privacy"*, presented at Caltech (US, April 1^{st} 2008).
- *"Quantum Reference Frame and the Classification of Rotationally-Invariant Maps"*, presented at the University of Guelph (Canada, October 5^{th} 2007), at the Perimeter Institute (Canada, October 24^{th} 2007) and at the Dayalbach Educational Institute in Agra (Inde, Decembre 22^{th} 2007).
- I also presented talks about my work at the Fields Institute (Canada, 2006 and 2005), the University of Calgary (Canada, 2006), the University of Cambridge (UK, 2006), at the Henri Poincaré Institute (France, 2006), the Max-Planck Institute (Germany, 2005), the University of Technology and Science of China (2004) and the Perimeter Institute (Canada, 2004).

- Laboratory Work: During my graduate studies, I learned how to **operate a NMR spectrometer** and I did many NMR experiments on topics such as Berry phase, quantum walks and quantum error correction. I also learned to convert a quantum circuit to a NMR pulse sequence and how to build solid state NMR probes, which were used in several experiments.

- Teaching Assistantship: I was a TA for a linear algebra course while I was a first year undergraduate student in McGill. After that, I have been a TA for some physics lab and physics for engineering courses, for an introductory course to **Matlab and C programming language**, and for a graduate quantum computing course.

- Mentoring:
  - During Fall 2004 and Winter 2005, I mentored a group of fourth year undergrad students of the University of Waterloo for their **honors project** on the optimization of quantum communication using classical or quantum feedback . The students won a prize for the quality of their work.
  - During summer 2004, I went to Heifi to **supervised an experiment on quantum cryptography** using decoherence-free subspace at the University of Technology and Science of China.
  - I have been a **supervisor for the robotic team** of the college Jean-de-Brebeuf (I did the same project during my CEGEP).

- Other Activities: For one year, I was the **Honors representative** in the McGill Math Students Undergraduate Society. In Montreal, I worked two years as a **volunteer at Santropole Roulant** (I delivered food to people with disabilities). I have been an **administrator for the student COOP** at the college Brebeuf and I **wrote regular articles** about sciences in the student journal. I have been a **leader in a sport camp** in Vermont for two consecutive years. I **refereed for EPJD, JMP, JPA, PRA, PRL and some conference proceedings**.

- Recent Projects:

  - In the winter of 2006, I received an award from the Marie Curie Foundation to attend a school on quantum information, computation and complexity in Paris for three months at the Henri Poincaré Institute.
  - I was the **organizer of the Fourth Annual Canadian Quantum Information Students' Conference** in Waterloo in summer 2007.

- List of Scholarships and Awards (in Canadian dollars):

  - John Brodie Award (Perimeter Institute, 12/07),
  - NSERC PDF (NSERC, 40 000$/year for two years; 10/07-09/09),
  - CQIQC Fellowship (University of Toronto, 25 000$/year for two years; 10/07-09/09),
  - NSERC PGS D (NSERC, 21 000$/year for two years; 09/05-08/07),
  - Graduate Incentive Award (University of Waterloo, 5 000$/year; 05/03-09/04 and 09/05-08/07),
  - Ontario Graduate Scholarship (Government of Ontario, 15 000$; 09/04-08/05),
  - Marie Curie Grant (Marie Curie Foundation, 7360$; 01/06-04/06),
  - Grad/UW Entrance Award (University of Waterloo, 7 377$; 09/02-08/03),
  - NSERC PGS A (NSERC, 17 300$/year; 09/02-08/04)
  - FCAR (Government of Québec, 15 000$/year for two years; Declined),
  - Three NSERC Summer Research Scholarships (McGill and NSERC, approx. 6 500$ per summer; 2000, 2001 and 2002),
  - Mathisson Scholarship, (McGill , 3 000$; 09/01-04/02),
  - John Foster Scholarship (McGill, 1 000$; 09/00-04/01),
  - McConnell Entrance Scholarship, (McGill, 2 000$/year; 09/1999-04/2002).