

Curriculum Vitae

Tomás Veloz

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Personal information

- **Name:** Tomás Igor Veloz González.
- **Occupation:** PhD student, University of British Columbia and CEO, Sociedad Eolectrica Ltda.
- **Date of birth:** 12/23/1983.
- **e-mail:** tomas.veloz@ubc.ca
- **Nationality:** Chilean
- **Marital Status:** Single

Education

- **BSc in Physics:** University of Chile, 2002-2005. Ranked 3 over 11.
- **BSc in mathematics:** University of Chile, 2006-2007. Ranked 3 over 20.
- **MSc in computer science:** University of Chile, 2008-2010. Graudated with highest honours.
- **PhD in Interdisciplinary studies:** University of British Columbia, 2011-present.

Working Experience

- 2004-2007. Teacher assistant of undergraduate courses at the Physics and Mathematics Departments, University of Chile.
- January to March of 2006. Research assistant under the supervision of Dr. Eduardo Menendez at the Physics department, University of Chile. Computational simulations in solid state physics.
- April to July of 2009. Edition of the spanish version of the book “Charts for Prediction and Chance” written by Dr. Mario Markus, in cooperation with Editorial Lom (Chile) and the Institute Max-Planck für molekulare Physiologie (Germany).
- 2009-2010. Elaboration and management of a photovoltaic energy project with an indigenous community in the Desert of Atacama supported by the Chilean Environmental Agency (CONAMA).
- 2010-present. CEO of a renewable energies company that I co-found in Chile (Sociedad Eolétrica Ltda.).
- January to December 2011. Research assistant under the supervision of Dr. Liane Gabora at the Psychology department, University of British Columbia. Software development of psychological informed methods applied to cultural evolution.
- January to March 2012. Research Assistant under the supervision of Dr. Peter Dittrich at the Jena Centre for Bioinformatics. Cycle analysis of Reaction Networks.
- September to December 2012. Teacher Assistant at the Physics Department of the University of British Columbia, Okanagan campus.
- September to December 2013. Teacher Assistant at the Physics Department of the University of British Columbia, Okanagan campus.

Affiliations

- University of British Columbia, Okanagan Campus (Student)
- Sociedad Eolétrica Ltda (CEO)

- Centre Leo Apostel - VUB (Free Researcher)
- Instituto de Filosofía y Ciencias de la Complejidad IFICC (Free Researcher)

Honors/Awards

- 2008-2009. Academic Excellence Scholarship for Master students at the Computer Science department, University of Chile (5000 CAD approx.).
- November 2009. Renewables Academy (RENAC) Scholarship to attend a Renewable energies course in Berlin, Germany (2000 CAD approx).
- February 2010 to April 2010. Research visit Scholarship from the Biosystems analysis group, Friedrich Schiller Universitat, Jena, Germany (800 CAD approx).
- March 2010. Research visit Scholarship from University Claude Bernard I, Lyon France (500 CAD approx).
- January 2011-present. University of British Columbia International Partial Tuition Scholarship (6000 CAD year approx).
- June 2011. Santa Fe Complex Systems Institute Summer School Scholarship (2500 CAD approx).
- July 2011. University of British Columbia Graduate Entrance Scholarship (5000 CAD approx).
- July 2011-present. University of British Columbia PhD Tuition Award (7000 CAD approx).
- August 2011. University of British Columbia, Psychology department Travel Award (300 CAD approx).
- April-June 2012. Research visit Scholarship from Center Leo Apostel, Free University of Brussels (5000 CAD approx).
- September 2012-January 2013. University of British Columbia Graduate Fellowship (6000 CAD approx).
- September 2013-January 2014. University of British Columbia Graduate Fellowship (6000 CAD approx).

Research Interests

- Non-classical probability models in cognition: The application of quantum probability and quantum models in cognitive systems, with emphasis in concept theory and natural language processing.
- Chemical Reaction Networks: Mathematical and algorithmic aspects of the Chemical Organizations Theory (COT).
- Social and decision modelling: Development of a reaction-network-based framework for decision making in multiagent systems, inspired by Luhmann's social communication theory.
- Sustainability: Development of projects that contribute to the sustainable development of the society. In particular, concerning Renewable Energies.

Publications

1. Veloz, T., Zhao, X., Aerts, A.(2013) Measuring Conceptual Entanglement in Collections of Documents. Proceedings of Symposium on Quantum Interaction 2013. (in press)
2. Aerts, D., Broekaert, J., Sozzo, S., Veloz, T. (2013). Meaning-focused and Quantum-inspired Information Retrieval. arXiv preprint arXiv:1304.0104.
3. Aerts, D., Broekaert, J., Sozzo, S., Veloz, T. (2013). The Quantum Challenge in Concept Theory and Natural Language Processing. arXiv preprint arXiv:1306.2838.
4. Veloz, T., Razeto-Barry, P., Dittrich, P., Fajardo, A. (2012). Reaction networks and evolutionary game theory. *Journal of mathematical biology*, DOI:10.1007/s00285-012-0626-6
5. Tomas Veloz, Ilya Tëmkin, Liane Gabora (2012), *A Conceptual Network-Based Approach to Inferring the Cultural Evolutionary History of the Baltic Psaltery*. Proceedings of the Cognitive Science Annual Meeting 2012 (in press).
6. Diederik Aerts, Jan Broekaert, Liane Gabora, Tomas Veloz (2012), *The Guppy Effect as Interference*. Proceedings of the sixth symposium on Quantum Interaction (in press).

7. Peter Kreyssig, Gabi Escuela, Bryan Reynaert, Tomas Veloz, Bashar Ibrahim, Peter Dittrich (2012). *Cycles and the Qualitative Evolution of Chemical Systems*. PLOSOne 7(10): e45772. doi:10.1371/journal.pone.0045772.
8. Diederik Aerts, Liane Gabora, Sandro Sozzo, Tomas Veloz (2011), *Quantum Structure in Cognition: Fundamentals and Applications*. Proceedings of the Fifth International Conference on Quantum, Nano and Micro Technologies ICQNM 2011, 57–62.
9. Tomas Veloz, Liane Gabora, Mark Eyjolfson, Diederik Aerts (2011), *Toward a Formal Model of the Shifting Relationship between Concepts and Contexts during Associative Thought*, Lecture Notes in Computer Science, 2011, Volume 7052/2011, 25-34.
10. Liane Gabora, Stefan Leijnen, Carl Lipo, Tomas Veloz (2011), *A Non-Phylogenetic Conceptual Network Architecture for Organizing Classes of Material Artifacts into Cultural Lineages*, Proceedings of the Cognitive Science Annual Meeting 2011, 2923-2928.
11. Tomas Veloz, Bryan Reynaert, David Rojas, Peter Dittrich (2011) *A decomposition theorem in chemical organizations*. In: Proc. of European Conference on Artificial Life (ECAL 2011), LNCS, Springer.
12. Peter, M., Veloz, T., Dittrich, P. (2011). Feasibility of organizations - a refinement of chemical organization theory, *Lecture Notes in Computer Science*, 6501, 325-337.
13. Murad Mithani, Liane Gabora and Tomas Veloz (2010). *Modeling the Role of Context Dependency in the Identification and Manifestation of Entrepreneurial Opportunity*. Quantum Informatics for Cognitive, Social, and Semantic Processes. AAAI Fall Symposium. 91-98.

Conferences and Schools¹

- University of Magallanes Eolic energy seminar. Punta Arenas, Chile. September of 2003.
- School of transport electronic properties of confined systems. Valparaíso, Chile. October of 2004.

¹Paper presentations are marked with * and poster presentations are marked with **

- Presentation at the Chilean Simposium of Physics students. Santiago, Chile. September of 2005.
- LASS07 (Latin American School of Strings). Bariloche, Argentina. January 2007.
- School of Quantum Information. Paraty, Brasil. September 2009.
- *Chilean Society of Mathematics Simposium. Olmué, Chile. October 2009.
- Seminar AS5 about solar energy projects planning. Berlin, Germany. December 2010.
- Renewable energies seminar 2010 PUCV. Valparaíso, Chile. September 2010.
- *Environmental awareness and responsibility seminar PUCV. Valparaíso, Chile. October 2010.
- *Santa Fe Institue Summer School in Complex Systems. Santa Fe, USA, June 2011.
- *Mathematical Psychology Society Annual Meeting. Boston MA, USA, July 2011.
- **Cognitive Science Annual Meeting. Boston MA, USA, July 2011.
- *Sixth simposium on Quantum Interaction. Paris, France. June 2012.
- *Seventh simposium on Quantum Interaction. Leicester, England. June 2013.
- *Symposium of the International Institute for Advanced Studies in Systems Research and Cybernetics. Baden-Baden, Germany. June 2013
- **Cognitive Science Annual Meeting. Berlin, Germany, July 2013.

Research Internships

- February 2010 to April 2010, Biosystems analysis group, Friedrich Schiller Universitat, Jena, Germany.
- January 2012 to March 2012. Biosystems analysis group, Friedrich Schiller Universitat, Jena, Germany.

- April-June 2012. Center Leo Apostel, Free University of Brussels.
- January-March 2013. Computational Intelligence and Internet Applications Lab. Tianjin University. China.
- July-September 2013. Center Leo Apostel, Free University of Brussels.