Ulises Pereira

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Research Interests

Theoretical Neuroscience, Computational Neuroscience and Artificial Intelligence.

Education

- **PhD in Statistics** — **The University of Chicago**
  Advisor: Nicolas Brunel. *Expected 2018*
- **M.S. in Physics** — **Universidad de Chile**
  With Highest Distinction. Advisor: Enrique Tirapegui. *2013*
- **Molecular Biotechnology Engineer** — **Universidad de Chile**
  With Highest Distinction. Ranked first of eight graduates (1/8). *2013*
- **B.S. in Physics** — **Universidad de Chile**
  With Distinction. Ranked first of six graduates (1/6). *2011*

Honors and Awards

- **Doctoral Becas-Chile Scholarship** — **Chilean Government**
  Commission of Research in Science and Technology of the Chilean Government (CONICYT) *2013*
  Scholarship declined.
- **Doctoral Fulbright Fellowship** — **U.S. Government**
  Fulbright commission *2012*
- **Best Physics Student of Class 2011** — **Universidad de Chile**
  Department of Physics *2011*
- **CONICYT Master Fellowship** — **Chilean Government**
  Commission of Research in Science and Technology of the Chilean Government (CONICYT) *2011*
  Ranked 5/1584 at national level.
- **Bicentenario Scholarship for Undergraduate Studies** — **Chilean Government**
  Ministry of Education *2004*
- **Scholarship for Outstanding Score in PSU** — **Pontifical Catholic University of Chile**
  PSU (Spanish acronym) is the national Chilean university selection test. Scholarship declined. *2004*

Publications

Pereira U, Coullet P. and Tirapegui E. The Bogdanov-Takens Normal Form: A Minimal Model for Single Neuron Dynamics. Entropy. 2015.

Vera J., Pezzoli M., **Pereira U.**, Bacigalupo J. and Sanhueza M. Electrical Resonance in the θ Frequency Range in Olfactory Amygdala Neurons. Plos One. 2014.

Contreras D., **Pereira U.**, Hernández V., Reynaert B. and Letelier J.C. A loop conjecture for metabolic closure. *Advances in Artificial Life, ECAL 2011*. MIT press. 2011. **Selected one of the ten best papers of ECAL 2011**.

Jaramillo S., Honorato-Zimmer R., **Pereira U.** , Contreras D., Reynaert B., Hernández V., Soto-Andrade J., Cárdenas M.L., Cornish-Bowden A. and Letelier J.C. (M,R) Systems and RAF Sets: Common Ideas, Tools and Projections. *Artificial life XII*. MIT press. 2010.

Conferences

Pereira U. and Brunel N. Unsupervised Learning of Persistent and Sequential Activity. COSYNE Poster Presentation. Salt Lake City, EEUU. February, 2016.

Pereira U. and Brunel N. Unsupervised Learning of Sequential Activity. XV International Workshop on Instabilities and Nonequilibrium Structures. Valparaíso, Chile. December, 2015.

Vera J., **Pereira U.**, Reynaert B., Bacigalupo J. and Sanhueza M. Modulation of frequency preference by changes in input resistance. 44th Annual Meeting Society for Neuroscience. Washington D.C., USA. November, 2014.

Vera J., **Pereira U.**, Reynaert B., Deichler A., Astudillo D., Bacigalupo J., and Sanhueza M. A biological context for theta-frequency neuronal resonance: a comparative study between cortical amygdala and hippocampal neurons. X Annual meeting of the Chilean Society for Neuroscience. October, 2014. Valdivia, Chile. **Awarded for best panel presentation.**

Pereira U., Tirapegui E. Una Ecuación Universal Para la Dinámica Neuronal. In Proceedings of the XVII Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics. Santiago, Chile. December 2012.

Pereira U., Tirapegui E. Una Ecuación Universal Para la Dinámica Neuronal. In Proceedings of the XVIII Simposio Chileno de Física. La Serena, Chile. November, 2012.

Pereira U., Vera J., Pezzoli M., Bacigalupo J. and Sanhueza M. A computational conductance-based model that reproduce theta resonance dynamics in olfactory amygdala neurons.*41st Annual meeting of the Society for Neuroscience*. Washington DC, EEUU. November, 2011.

Vera J, **Pereira U.**, Pezzoli M., Bacigalupo J. and Sanhueza M. Sub and supra-threshold dynamics of resonant neurons in the olfactory amygdala.*41st Annual meeting of the Society for Neuroscience*. Washington DC, EEUU. November, 2011.

Contreras D, **Pereira U.**, Hernández V., Reynaert B. and Letelier J.C..A loop conjecture for metabolic closure.*Eleventh European Conference on the Synthesis and Simulation of Living Systems*. Paris, France. August, 2011.

Pereira U., Pezzoli M., Bacigalupo J., Sanhueza M.. A computational conductance-based model of electrical resonance in the theta frequency range in olfactory amygdala neurons. VI meeting of the Chilean Society of Neuroscience. Valdivia, Chile. September, 2010.

Jaramillo S., Honorato-Zimmer R., **Pereira U.**, Contreras D., Reynaert B., Hernández V., Soto-Andrade J., Cárdenas M.L., Cornish-Bowden A. and Letelier J.C. (M,R) Systems and RAF Sets: Common Ideas, Tools and Projections. *XII Artificial life Conference*. Odense, Denmark. August, 2010.

Teaching Experience

- **Statistical Models and Methods** — **The University of Chicago**
  Lecturer — *Winter quarter 2015*
- **Statistical Methods and Applications** — **The University of Chicago**
  Teacher Assistant — *Fall quarter 2015*
- **Statistical Models and Methods** — **The University of Chicago**
  Teacher Assistant — *Spring quarter 2015*
- **Elementary Statistic** — **The University of Chicago**
  Teacher Assistant — *Fall quarter 2014*
- **Statistical Methods and Applications** — **The University of Chicago**
  Teacher Assistant — *Spring quarter 2014*
- **Theoretical Neuroscience: Network Dynamics and Computation** — **The University of Chicago**
  Teacher Assistant — *Winter quarter 2013*

- **General Physiology** — **Universidad de Chile**
  Teacher Assistant — *Autumn Semester 2010*
- **Biological Instrumentation** — **Universidad de Chile**
  Teacher Assistant — *Spring Semester 2008*

Courses

- **Latin American Summer School in Computational Neuroscience** — **Institute of Complex Systems**
  Valparaíso, Chile. — *11 to 29 January, 2010*
- **VI Summer School of Complex Systems** — **Institute of Complex Systems**
  Valparaíso, Chile. — *7 to 11 of January, 2008*