

Leonardo Casarsa de Azevedo

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Education

- 2013-2015 **M.Sc. in Neural Information Processing**, *International Max Planck Research School*, Tübingen, Germany.
Thesis: Causal Inference in Neuroimaging
- 2008-2012 **B.Sc. in Molecular Sciences**, *University of São Paulo*, São Paulo, Brazil.
Research: Mathematical Modeling of the Emergence of Altruism

Computer Skills

- Proficient Python (2 years), MATLAB (2 years), C (1 year).
Beginner MIT-Scheme (6 months).

Research Experience

- Feb 2016 - now **Visiting Graduate Student**, *MIT, Brain and Cognitive Sciences*, Cambridge - MA, USA.
Advisor: Vikash Mansinghka
Description:
 - Analysis of datasets from birth cohort studies and fMRI experiment using probabilistic programming systems (BayesDB, CrossCat);
 - Development of a bayesian search engine for structured datasets [*ongoing*].
- Aug 2015 **Summer Course Project**, *Center for Brains Minds and Machines*, Woods Hole - MA, USA.
Title: Probabilistic Programming and Bayesian Structure Learning
Advisor: Joshua Tenenbaum
Description:
 - Bayesian structure learning of a shallow neural network for the XOR problem using VentureScript.
- Oct-Aug 2015 **Master Thesis**, *Max Planck Institute for Intelligent Systems, Department of Empirical Inference*, Tübingen, Germany.
Title: Causal Inference in Neuroimaging
Advisor: Moritz Große-Wentrup
Description:
 - Setup EEG and Eye Tracker laboratory;
 - Design and development of covert visual attention paradigm with PsychToolbox;
 - Conducting experiment on ten participants;
 - Preprocessing and analysis of behavioral and EEG data;
 - Writeup of Master Thesis;

- Sep-Oct 2014 **Lab Rotation Project**, *Max Planck Institute for Intelligent Systems, Department of Empirical Inference, Tübingen, Germany.*
Title: Projection Methods for Large Linear Systems
Advisor: Philipp Hennig
Description:
 - Writeup of essay on the derivation of projection methods for iteratively solving linear systems.
- 2013-2015 **Research Assistant**, *Max Planck Institute for Biological Cybernetics, Department of Physiology of Cognitive Processes, Tübingen, Germany.*
Advisors: Nikos Logothetis & Matthias Munk
Description:
 - Design and development of fine-motor learning paradigm for monkeys;
 - Behavioral training of one Rhesus monkey for the paradigm;
 - Write up of project proposal titled “Striatocortical interactions underlying procedural learning”
 - Presentation of project proposal at a scientific advisory board meeting.
- 2012-2013 **Research Assistant**, *Max Planck Institute for Biological Cybernetics, Department of Physiology of Cognitive Processes, Tübingen, Germany.*
Advisor: Georgios Keliris
Description:
 - Behavioral training of one Rhesus monkey for an fMRI visual attention experiment;
 - Assistance in experimental procedures involving surgery, electrophysiology, fMRI, and 2-photon microscopy in monkeys.
- 2010-2012 **Bachelor Thesis**, *Institute for Mathematics and Statistics at the University of São Paulo - Applied Mathematics, São Paulo, Brazil.*
Title: Mathematical Modeling of the Emergence of Altruism
Advisor: Renato Vicente
Description:
 - Reproduction of theoretical and computational results from two selected papers.

Scholarships & Awards

- 2016 **Travel Award and Funding for Student Visit at MIT (1 year).**
2015 **Travel Award for the Brains, Minds and Machines Summer Course.**

Posters

Probabilistic programming for constraint-based causal learning, [Casarsa L](#), Mansinghka V, *PPAML PI Meeting*, Jul 2016, Columbia University, New York, USA.

Analysis of birth cohort studies in BayesDB, [Casarsa L](#), Karimi B, Mansinghka V, *PPAML PI Meeting*, Jul 2016, Columbia University, New York, USA.

Eigenvector centrality mapping during natural viewing in the macaque brain, Azevedo FAC, Ortiz-Rios M, [Azevedo LC](#), Balla DZ, Lohmann G, Logothetis NK, Keliris GA, *IBRO*, Jul 2015, Rio de Janeiro, Brazil.

Dynamic functional connectivity reflects complex audiovisual scene changes during cognitive processing, Ortiz-Rios M, Azevedo FAC, [Azevedo LC](#), Balla DZ, Lohmann G, Logothetis NK, Keliris GA, *IBRO*, Jul 2015, Rio de Janeiro, Brazil.

Effects of visual attention on neural processing in Rhesus V1 by simultaneous electrophysiology and BOLD-fMRI, Azevedo FAC, [Azevedo LC](#), Logothetis NK, Keliris GA.

Presented in the following conferences:

1. *Neurowissenschaftliche Nachwuchskonferenz*, Nov 2012, Schramberg, Germany.
2. *Workshop on Orienting of attention: neural implementation, underlying mechanisms and clinical implications*, Nov 2012, Tübingen, Germany.
3. *3rd NetWorks! Symposium*, Sep 2012, Berlin, Germany.

Oral Presentations

- Oct 2015 **Can computers treat sick brains?**, *Thesis in Three Competition*, MPI for Intelligent Systems, Stuttgart, Germany.
- ★ Awarded 2nd Place in the M.Sc. category
- Sep 2012 **Attention and V1: an attempt to record BOLD and Electrophysiology simultaneously**, *3rd NetWorks! Symposium*, Berlin, Germany.

Teaching Experience

- 2014 **Essential Math**, *International Max Planck Research School*, Eberhard Karls Universität Tübingen.
Master Teaching Assistant
Responsibilities: Tutorials and homework correction.
- 2011 **Physics II - Oscillations and Thermodynamics**, *Molecular Sciences*, University of São Paulo.
Undergraduate Teaching Assistant
Responsibilities: Substitute lectures, tutorials, and homework correction.

Conference Organization

- Jul 2015 **Machine Learning Summer School 2015**, *Max Planck Institute for Intelligent Systems*, Tübingen, Germany.
Student Volunteer
- Sep 2013 **4th Networks! Symposium**, *Max Planck Institute for Biological Cybernetics*, Tübingen, Germany.
Keynote Lecturers: Niels Birbaumer, Roberto Lent, Nikos K. Logothetis.
Organizing Committee

Additional Education

- Sep 2015 **Workshop on Gaussian Processes for Global Optimization**, *University of Sheffield*, Sheffield, UK.
- Aug 2015 **Brains, Minds and Machines Summer Course**, *Center for Brains, Minds and Machines*, Marine Biological Laboratory, Woods Hole, USA.
- Jul 2015 **Machine Learning Summer School**, *Max Planck Institute for Intelligent Systems*, Tübingen, Germany.

- Aug 2014 **Memory and Consciousness Summer School**, *Eberhard Karls Universität Tübingen*, Tübingen, Germany.
- Aug 2013 **1st Swiss Computational Neuroscience Summer School**, *Friedrich Miescher Institute*, Basel, Switzerland.
- Jul 2009 **27th Brazilian Colloquium in Mathematics**, *Institute of Pure and Applied Mathematics (IMPA)*, Rio de Janeiro, Brasil.

Languages

Proficient Portuguese (native), English, German, Spanish.
Basic Italian, French.

References

Nikos K Logothetis, Professor, Max Planck Institute for Biological Cybernetics, nikos.logothetis@tuebingen.mpg.de.

Vikash K Mansinghka, Dr., Massachusetts Institute of Technology, vkm@mit.edu.

Joshua B Tenenbaum, Professor, Massachusetts Institute of Technology, jbt@mit.edu.
