Prof. Leopoldo Bertossi[1]

Research Areas:

- Explainable AI and Machine Learning
- Causality and Fairness in Data Science
- Data Science and Data Management
- Statistical Relational Learning
- Probabilistic Graphical Models
- Knowledge Representation in AI
- Ontologies and Knowledge Graphs
- Business Intelligence
- Data Integration and Quality
- Logic Programming and Computational Logic
- Foundations of Probability and Statistical Methods

Current Affiliations:

- Professor Emeritus of Computer Science. Carleton University, Ottawa, Canada. Since 2019. Grad supervisor and NSERC DG holder.
- Senior Researcher "Millennium Institute for Foundational Research on Data" (IMFD, Chile). Since 2018.

Education:

- PhD in Exact Sciences, Mathematics. Pontifical Catholic University of Chile (PUC, Chile), 1988. PhD Thesis on Mathematical Logic.
- Masters in Exact Sciences, Mathematics. PUC Chile, 1982.
- Bachelor of Honors in Mathematics. PUC Chile, 1976.

Soft Skills:

- Research Team Management.
- Research Policies and Research Proposal Writing.
- Educational Policies and Initiatives.
- Entrepreneurship Policies/Support.
- Technical Writing and Presentations.
- International Research Projects & Collaboration.
- Development & Admin of Research and Study Programs

Some Career Highlights:

- "NSERC Discovery Grant" holder. 2023-2027. "Explanations and Interpretation in Machine Learning". Ca$ 41K per year.
- Full Professor: Carleton U. (2001-2019). UAI, Faculty of Engineering and Sciences (2019-2022).
- Director PhD & MSc Programs in Data Science, UAI (2019-2022).
- RelationalAI Inc. (Berkeley, CA). Senior Computer Scientist. 2018-20.

[1] Download a full CV from: www.scs.carleton.ca/~bertossi/cv26.pdf
Email: bertossi@scs.carleton.ca Web Page: www.scs.carleton.ca/~bertossi

- Honors: (a) First Honorary Member of the Chilean Computer Science Society (SCCC), 2003. (b) (b) Special Recognition of the Brazilean Computer Science Society, 2017. (c) Doctor Honoris Causa, Univ. Privada Antenor Orrego, Peru, 2015.
- PI and International Coordinator of STIC AMSUD Project "Declarative and Ontology-Enhanced Data Analytics and Machine Learning" with U. Paris V, U. Rennes, U. Buenos Aires, U. de la República (Uruguay), 2022-2023.
- "Adaptive Data Quality" Theme Leader. NSERC Strategic Network "Data Management for Business Intelligence" (BIN), Canada, 2008-12.

Some Recent Publications:

- F. Azua and L. Bertossi. "The Causal-Effect Score in Data Management". Proc. 4th Conference on Causal Learning and Reasoning (CLeaR 2025). Proc. Machine Learning Research 275:874–893, 2025.
- S. Cifuentes, L. Bertossi, N. Pardal, S. Abriola, M. V. Martinez and M. Romero. "The Distributional Uncertainty of the SHAP Score in Explainable Machine Learning". Proc. ECAI, 2024.
- M. Arenas, P. Barcelo, L. Bertossi and M. Monet. "On the Complexity of SHAP-Score-Based Explanations: Tractability via Knowledge Compilation and Non-Approximability Results". *Journal of Machine Learning Research*, 2023, 24(63):1-58 (ext. version of AAAI'21 paper).
- L. Bertossi. "Declarative Approaches to Counterfactual Explanations for Classification". *Theory Pract. Log. Program.*, 2023, 23(3):559–593.
- L. Bertossi, B. Kimelfeld, E. Livshits and M. Monet. "The Shapley Value in Database Management". *ACM Sigmod Record*, 2023, 52(2):6-17.
- L. Bertossi and J. E. Leon. "Efficient Computation of Shap Explanation Scores for Neural Network Classifiers via Knowledge Compilation". Proc. of *Logic in AI* (JELIA'23), Springer LNCS 14281, 2023.
- E. Livshits, L. Bertossi, B. Kimelfeld and M. Sebag. "The Shapley Value of Tuples in Query Answering". *Logical Methods in Computer Science*, 2021, 17(3):22.1-22.33.
- L. Bertossi and F. Geerts. "Data Quality and Explainable AI". *Journal of Data and Information Quality*, 2020, 12(2):1-9.
- L. Bertossi and M. Milani. "Ontological Multidimensional Data Models and Contextual Data Quality". *Journal of Data and Information Quality*, 2018, 9(3):14.1-14.36.
- L. Bertossi and B. Salimi. "Causes for Query Answers from Databases: Datalog Abduction, View-Updates, and Integrity Constraints". *International Journal of Approximate Reasoning*, 2017, 90:226-252.
- Z. Bahmani, L. Bertossi and N. Vasiloglou. "ERBlox: Combining Matching Dependencies with Machine Learning for Entity Resolution". *International Journal of Approximate Reasoning*, 2017, 83:118-141.