

Dr. ITALO CIPRIANO

PERSONAL DATA

NAME: Italo Cipriano
PLACE AND DATE OF BIRTH: Santiago, Chile | 5 May 1986
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INTRODUCTION

Dr. Italo Cipriano is a mathematician and engineer, working full-time as a data scientist at LVA Índices, a Chilean fintech. He is in charge of a price model of fixed income assets for the Chilean market. He works without university affiliation in Ergodic Theory and Dynamical Systems, and as a teaching assistant of advanced courses in finances.

His previous work was at Alicanto Lab, a spin-off of University Adolfo Ibáñez. It develops a software for Mine Planning. He worked in Optimization, Integer Programming and Strategic Mine Planning. Specifically, he worked on designing and implementing List Scheduling strategies for improving the efficiency of a solver for underground mine project scheduling problems. His main accomplishment was the creation and implementation of a list scheduling heuristic for obtaining integer solutions from the LP relaxation of a constrained linear problem with millions of variables and thousands of restrictions. The proposed algorithm allowed to obtain solutions at least 5% better than the best previously known on a set of real instances of Mine Planning, in less than 1% of the time.

WORK EXPERIENCE

2022	Financial modeling, LVAindices.
2020-2022	Postdoc. Optimization for project management in underground mine planning, Postdoctoral fellowship, Universidad Adolfo Ibáñez - Chile. Project code: FONDEF ID1910164.
2018-2020	Postdoc. Dynamical Systems and Ergodic Theory, Postdoctoral fellowship, Pontificia Universidad Católica de Chile. Project code: CONICYT PIA ACT172001.
2017-2018	Researcher. Tailing Optimal Control and Supervision Through New Technologies. Project code: FONDEF IT16M10012.
2017-2018	Researcher. Developing of new technologies for early-warning systems of stability of tailing dams. Project code: FONDECYT 1161039.

PROGRAMMING SKILLS

Advanced | Python, Pandas, R, Matlab, Sage

User | Java, Git, Slurm, Slack, Latex, DualSPHysics, DBeaver, AWS, CPLEX

LANGUAGES

English (proficient user), Italian (bilingual), Spanish (bilingual), German (A1)

EDUCATION

- 2015 | PH.D. IN MATHEMATICS
(Thermodynamic Formalism)
Warwick University, Coventry, UK
- 2011 | BACHELOR OF SCIENCES IN ENGINEERING MATHEMATICS
(Equivalent to M.Sc)
University of Chile, Santiago, Chile

PUBLICATIONS

1. I. Cipriano, "Entry time statistics to different shrinking sets," *Stochastics and Dynamics. Stoch. Dyn.*, vol. 17, no. 3, pp. 314–323, 2017.
2. I. Cipriano and M. Pollicott, "Stationary measures associated to analytic one dimensional iterated function schemes," *Mathematische Nachrichten*, vol. 291, no. 7, pp. 1049–1054, 2018.
3. I. Cipriano and G. Iommi, "Time change for flows and thermodynamic formalism", *Nonlinearity*, 2019.
4. I. Cipriano and N. Jurga, "Approximating integrals with respect to stationary probability measures of iterated function systems", *Ergodic Theory and Dynamical Systems*, 2020.
5. A. Hill, A. Brickey, I. Cipriano, M. Goycoolea and A. Newman, "Optimization Strategies for Resource-Constrained Project Scheduling Problems in Underground Mining", *INFORMS Journal on Computing*, 2022.

SELECTED TALKS

1. The University of Warwick, Thermodynamic Formalism: Ergodic Theory and Geometry, A workshop celebrating the 60th birthday of Mark Pollicott, 10-14 Jul 2019. "Approximating integrals with respect to stationary probability measures and applications."
2. CIRM - Luminy, Thermodynamic Formalism: Ergodic Theory and Validated Numerics, 8-12 Jul 2019. "Time change for flows."
3. University of Oxford, Young Research Meeting, 17 Aug 2015. "Large deviations."

TEACHING

- Lecturer: *Ordinary Differential equations, Calculus, Linear Algebra, Differentiation and Integration, Introduction to Algebra.*
- Supervisions: *Advanced Linear Algebra, Vector Analysis, Analysis III, Algebra II and Metric Spaces.*
- Teaching assistant: *Functional Analysis, Calculus, Multivariate Calculus, Information Theory applied to statistics and codification, Information Theory, Single Variable Calculus, Optimization, Differentiation and Integration, Ordinary Differential equations, Financial Risk.*

CERTIFICATIONS

- Practical Time Series Analysis. The State University of New York, 2019.
- The R Programming Environment. Johns Hopkins University, 2019.
- Algorithmic Toolbox. University of California, San Diego & Higher School of Economics, 2016.
- Machine Learning. Stanford University, 2016.

AWARDS, FELLOWSHIPS, SCHOLARSHIPS

- Postdoctoral fellowship, Research supported by National Commission for Scientific and Technological Research - Chile, School of Business, Universidad Adolfo Ibáñez - Chile, 2019.

- Postdoctoral fellowship, Research supported by National Commission for Scientific and Technological Research - Chile, Institute of Mathematics, Pontificia Universidad Católica de Chile, 2017.
- Graduate Scholarship, CONICYT - Chile, Studies supported by National Commission for Scientific and Technological Research - Chile, 2010.
- Outstanding student, Universidad de Chile, 2005.

RESPONSIBILITIES, ORGANISER, CONSULTING

- 2020- , Reviewer American Mathematical Society, AMS.
- 2018-2020, Organizer [Santiago Dynamical Systems Seminar](#).
- 19-21 Dec 2018, Co-organizer, Encuentro LXXXVII Chilean Mathematical Society, SOMACHI.
- 2016, Private consultant, [R&V Ingenieros](#), Engineering. company with projects in soil mechanics, urbanisation and hydraulic engineering.
- 2016, Private consultant, Information security.

OTHERS

- Best swimmer University of Chile, 2006.
- Best swimmer Región Metropolitana, Chile, 1999.
- Chilean national swimming team, 1998.
- Chilean national record swimming, 1998.