RAÚL PENAGUIÃO

Contact

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Address - Zürich, Switzerland
Date of Birth: 30 - 12 - 1993
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Education

University of Zürich, Switzerland
Doctoral studies in mathematics - Degree (PhD) in Pure Mathematics
October 2016 - May 2020
PhD Advisor: Valentin Féray

ETH Zürich, Switzerland
Masters of Science in Mathematics - Degree (MSc) in Pure Mathematics
September 2014 - September 2016
Grade: 5.64/6
Master Thesis advisors: Valentin Féray and Angelika Steger

Instituto Superior Técnico, University of Lisbon, Portugal.
Degree (BSc) in Applied Mathematics and Computation
September 2011 - August 2014
Grade: 19/20
Bachelor Thesis advisor: Miguel Abreu

Employment

San Francisco State University, San Francisco, US.
PostDoc researcher
March 2021 - September 2022

University of Zurich, Zürich, Switzerland.
Teaching assistant and Doctoral student
September 2016 - August 2020

ETH Zürich, Zürich, Switzerland.
Teaching assistant in Mathematical Methods in Physics I and in Analysis I
September 2015 - December 2015 and March 2016 - May 2016

NovaBase, Lisbon, Portugal.
Technical Assistant
October 2013 - January 2014
External Information: `http://www.novabase.pt/en`

Institutional responsibilities

Researcher and teaching assistant.

Representative of the teaching assistants in the committee of Mathematics department from 2017 January to 2017 June.

Scientific publications

- *The kernel of chromatic quasisymmetric functions on graphs and nestohedra, 30th International Conference on Formal Power Series and Algebraic Combinatorics.*
- *The kernel of chromatic invariants on graphs and hypergraphical polytopes,* published in Journal of Combinatorial Theory, Series A, 175, 105258.
- *The feasible region for consecutive patterns of permutations is a cycle polytope, 32nd International Conference on Formal Power Series and Algebraic Combinatorics.*
- *The feasible region for consecutive patterns of permutations is a cycle polytope,* with Jacopo Borga, accepted for publication in Algebraic Combinatorics.
- *Pattern Hopf algebras,* submitted for publication.
- *The feasible regions for consecutive patterns of pattern avoiding permutations,* with Jacopo Borga, in preparation.
- *Yet more antipode formulas from the sign-reversion involution method,* with Yannic Vargas, in preparation.

Teaching experience

Teaching assistant at courses in University of Zürich

Assistant in probability II in 2019 fall semester - Valentin Féray - Web.

Assistant in stochastics in 2019 spring semester - Christoph Luchsinger - Web.

Assistant in linear algebra I in 2018 fall semester - Alberto Cattaneo - Web.

Assistant in Hopf algebras in 2018 spring semester - Benedict Stufler - Web.

Assistant in probability II in 2017 fall semester - Valentin Féray - Web.

Assistant in linear algebra II in 2017 spring semester - Andrew Kresch - Web.

Assistant in mathematical foundations, 2016 fall semester - Mathilde Bouvel - Web.

Teaching assistant at courses in ETH Zürich

Assistant in Analysis II in 2016 spring semester - Web.

Assistant in MMP I in 2015 fall semester - Web.

Organization of conferences	Organizer of the "Student workshop for permutation patterns in 2019" - `https://sites.google.com/view/permutation-patterns-2019/pre-conference-workshop` *This is a satellite workshop to the conference* Permutation Patterns 2019 - Zurich. Organizer of the first edition of "Mathematics, Statistics and Computation Journeys" (JMEC), main organizer of the Math exposition - `http://jmec.ist.utl.pt/`
Undergraduate scientific experience	• *Chromatic invariants on random graphs* (2016) Advisor: Valentin Féray, Zürich University. • *Chromatic invariants on graphs* (2015-2016) Advisor: Valentin Féray, Zürich University. • *Finite Quandles* (2013-2014) Advisor: Pedro Lopes, University of Lisbon. • *Dinitz conjecture, stable matching and graph painting* (2011-2012) Advisor: José Fachada, University of Lisbon.
Awards and Fellowships	*Mathematical Olympiads* • Silver medal in the Ibero-American Mathematical Olympiad for University Students. (2011) • Silver Medal in the Ibero-American Mathematical Olympiad. (2011) • Bronze Medal in the International Mathematical Olympiad. (2011) • Gold Medal in the Portuguese Mathematical Olympiad. (2008, 2010 and 2011) *Programming Team Olympiads* • Gold Medal in the Portuguese Inter-Universitary Marathon. (2011) • Bronze Medal in the South-West European Regional Contest. (2011, 2012, 2013) *Fellowships* • Swiss national science foundation - PostDoc.Mobility grant (2020 - 2022) • Calouste Gulbenkian foundation - New talents fellowship. (2011-2012) • Calouste Gulbenkian foundation - New talents fellowship. (2013-2014)
Programming skills	• General-purpose: C++ and Python • Technical computing systems: Mathematica, MatLab and SAGE math • Markup languages: HTML and LaTeX
Language skills	Portuguese: Mother tongue. English: C. German: B2. French, Spanish: A2.