Rodrigo Dorantes-Gilardi

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IXXI: Institute of Complex Systems of Rhône-Alpes
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France

Born: 24 April 1990
Nationality: Mexican/Spanish
Web: `https://rodogi.github.io`

Education

2014–2018	PhD Applied Mathematics Under supervision of Claire Lesieur and Laurent Vuillon, *IXXI Complex Systems Institute, ENS-Lyon, France.* *LAMA Mathematics Laboratory, Le Bourget-du-Lac, France.* "Bio-mathematical aspects of the plasticity of protein folding"
2014	Master thesis supervised by Gelasio Salazar, *Universidad Autónoma de San Luis Potosí, Mexico* "An algorithm in python on the minium crossing number of complete graphs".
2012–2014	Master degree in applied mathematics, *Universidad Autónoma de San Luis Potosí, Mexico.*
2008–2012	Bachelor degree in Economics, *Université de Toulouse Capitole, France.*
2005–2008	High School diploma, option: General Sciences, *Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico.*

Publications

Articles

2018	**R. Dorantes-Gilardi**, L Bourgeat, L Vuillon, and C Lesieur *Protein Structure Plasticity: the Neighborhood Watch.* Submitted (January 26th) to Nature Structural & Molecular Biology
2018	**R. Dorantes-Gilardi**, L. Vuillon, and C Lesieur *A Network Approach to Perturbation of Protein Structure.* To appear in Applied Network Science
2016	M. Achoch, **R. Dorantes-Gilardi**, C. Wymant, G. Feverati, K. Salamatian, L. Vuillon, and C. Lesieur *Protein structural robustness to mutations: an in silico investigation.* Phys. Chem. Chem. Phys., **18**, 13770 (2016)

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Chapters

2018 (July)	C. Lesieur, **R. Dorantes-Gilardi**, and L. Vuillon *Chapter: Induced Graphs: surfing on protein structures.* Book: Allostery and protein dynamics: from physical chemistry to drug discovery To appear in Springer *Methods in Molecular Biology*

Proceedings

2017 (December)	**R. Dorantes-Gilardi**, L. Vuillon, and C.Lesieur *Perturbation of amino acid networks: A statistical study of the defects introduced in proteins by mutations.* The 6th International Conference on Complex Networks and Their Applications

Talks

2016 (May)	Workshop on Mechanisms underlying local to global signals in networks *Amino-acid network as a model of the protein's structure, an in silico investigation.* IXXI, École Normale Supérieure de Lyon, France.
2016 (March)	Workshop on Advanced mathematics for network analysis *Amino-acid networks used to capture protein structural changes caused by mutations.* Luchon, France.
2015 (June)	Workshop on protein fibers: from pathology to nanomaterial *Protein Graphs.* École Normale Supérieure de Lyon, France.
2015 (April)	IXXI Seminar *Tentative to relate functional and structural changes in protein, caused by mutations (perturbations) using amino-acid networks.* École Normale Supérieure de Lyon, France.
2014 (December)	Theoretical Approaches for the Genome and the proteome *What impact to expect on a whole protein from geometrical changes produced by local amino acid side chain perturbation (in silico amino acid mutation): resilience and innovation.* Bourget-du-Lac, France.

Posters

2017 (December)	The 6th International Conference on Complex Networks and Their Applications *Perturbation of amino acid networks: A statistical study of the defects introduced in proteins by mutations.* Lyon, France.
2015 (May)	Inter'Actions 2015 *Statistics On Protein Graphs.* Grenoble, France.

Conferences and Schools

2016 (April)	*Spring school of theoretical informatics.* CIRM, Marseille, France.
2016 (March)	*School for young researchers in mathematical informatics.* IMJ-PRG, Paris, France.
2015 (January)	*School Algorithms and Heuristics for Large-scale Data Sets.* École Normale Supérieure de Lyon, Lyon, France.
2014 (November)	*Lyon systems biology.* École Normale Supérieure de Lyon, Lyon, France.

Organization

2014 (December)	Theoretical Approaches for the Genome and the proteome Bourget-du-Lac, France.

Skills

Python	Advanced (numpy, pandas, matplotlib, networkx, biopython, requests)
Tex	Intermediate
Elisp	Intermediate
C	basic
SQL	basic
Git	Intermediate
Linux/GNU	Intermediate
Bash (zsh)	Intermediate
HTML, CSS	Intermediate
Pymol	Intermediate
YASARA	Intermediate
FoldX	Intermediate
Bio	Protein Data Bank: query (requests module in python), cleanse, analyze (numpy and pandas)
Bio-Structure	Database analysis (Biopython PDB module)
Bio-Space	Computational Algorithms using Delaunay triangulations and Convex hulls (Scipy spatial module)

Open Source Software

I have contributed to the following projects:

- networkx (`https://networkx.github.io/`)

- biopython (`http://biopython.org/`)

Languages

Spanish	Reading, Writing, Speaking: Native language.
English	Reading, Writing, Speaking: Fluent.
French	Reading, Writing, Speaking: Fluent.

Recommendation Contacts

- Claire Lesieur   Laboratoire Ampère, Université Claude Bernard Lyon 1/ IXXI, ENS-Lyon
  ✉ claire.lesieur@ens-lyon.fr

- Laurent Vuillon   Laboratoire de Mathématiques, Université de Savoie Mont-Blanc
  ✉ laurent.vuillon@gmail.com

- Gelasio Salazar   Instituto de Física, Universidad Autónoma de San Luis Potosí
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