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)

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
  ✉ gelasio.salazar@gmail.com