

# Rodrigo Dorantes-Gilardi

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COLMEX  
Mexico City, September 2020

Born: April 24 1990  
Nationality: Mexican/Spanish

Web: <https://rodogi.github.io>

## Work

<b>March 2020</b>	Postdoctoral Fellow at Colegio de México
<b>2019–2020</b>	Postdoctoral Fellow at Instituto Nacional de Medicina Genómica
<b>2018–2019</b>	Data Scientist at Telcel

## Education

<b>April 24 2018</b>	PhD Defense “Bio-mathematical aspects of the plasticity of protein folding”  Thesis committee: Frédéric Cazals (INRIA), Lashuel Hilal (École Polytechnique Fédérale de Lausanne), Kavé Salamatian (Université de Savoie Mont-Blanc),
<b>2014–2018</b>	PhD Applied Mathematics Under supervision of Claire Lesieur and Laurent Vuillon, <i>IXXI Complex Systems Institute, ENS-Lyon, France.</i> <i>LAMA Mathematics Laboratory, Le Bourget-du-Lac, France.</i> “Bio-mathematical aspects of the plasticity of protein folding”
<b>2014</b>	Master thesis supervised by Gelasio Salazar, <i>Universidad Autónoma de San Luis Potosí, Mexico</i> “An algorithm in python on the minium crossing number of complete graphs”.
<b>2012–2014</b>	Master degree in applied mathematics, <i>Universidad Autónoma de San Luis Potosí, Mexico.</i>
<b>2008–2012</b>	Bachelor degree in Economics, <i>Université de Toulouse Capitole, France.</i>
<b>2005–2008</b>	High School diploma, option: General Sciences, <i>Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico.</i>

## Publications

### Peer reviewed

<b>2020</b> (To Appear)	<b>R. Dorantes-Gilardi</b> , D. García-Cortés, Hiram Hernández-Ramos and J. Espinal-Enrquez <i>Eight years of homicide evolution in Monterrey, Mexico: a network approach.</i> In press
<b>2020</b> (August)	<b>R. Dorantes-Gilardi</b> , D. García-Cortés, E. Hernandez-Lemus, and J. Espinal-Enrquez <i>Multilayer approach reveals organizational principles disrupted in breast cancer co-expression networks.</i> Applied Network Science
<b>2018</b> (October)	<b>R. Dorantes-Gilardi</b> , L Bourgeat, L Vuillon, and C Lesieur <i>In proteins, the structural responses of a position to mutation rely on the Goldilocks principle: not too many links, not too few.</i> Phys. Chem. Chem. Phys., <b>20</b> , 25399 (2018)
<b>2016</b> (December)	M. Achoch, <b>R. Dorantes-Gilardi</b> , C. Wymant, G. Feverati, K. Salamatian, L. Vuillon, and C. Lesieur <i>Protein structural robustness to mutations: an in silico investigation.</i> Phys. Chem. Chem. Phys., <b>18</b> , 13770 (2016)

### Conference articles

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

<b>2020</b> (Fall)	Mathematics <i>El Colegio de México.</i> Undergraduate
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## Awards

<b>2020</b> (SNI)	Sistema Nacional de Investigadores <i>Candidate</i> Area 1 (Interdisciplinary and applied math)
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## Talks

<b>2020</b> (December)	Computational biology week at the INMEGEN <i>Gene co-expression networks.</i> Insituto Nacional de Medicina genómica.
<b>2016</b> (May)	Workshop on Mechanisms underlying local to global signals in networks <i>Amino-acid network as a model of the protein's structure, an in silico investigation.</i> IXXI, École Normale Supérieure de Lyon, France.
<b>2016</b> (March)	Workshop on Advanced mathematics for network analysis <i>Amino-acid networks used to capture protein structural changes caused by mutations.</i> Luchon, France.
<b>2015</b> (June)	Workshop on protein fibers: from pathology to nanomaterial <i>Protein Graphs.</i> École Normale Supérieure de Lyon, France.
<b>2015</b> (April)	IXXI Seminar <i>Tentative to relate functional and structural changes in protein, caused by mutations (perturbations) using amino-acid networks.</i> École Normale Supérieure de Lyon, France.
<b>2014</b> (December)	Theoretical Approaches for the Genome and the proteome <i>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.</i> Bourget-du-Lac, France.

## Posters

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

## Schools

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

## Organization

<b>2014</b> (December)	Theoretical Approaches for the Genome and the proteome Bourget-du-Lac, France.
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## Skills

### Programming

Python	Advanced
R	Intermediate
Linux/GNU	Advanced (Bash)
Tex	Advanced
Lisp	Intermediate (Emacs)
SQL	Intermediate (Oracle and Netezza)
Git	Intermediate
HTML, CSS	Intermediate

## Open Source Software

I have contributed to the following projects:

- networkx (<https://networkx.github.io/>)
- biopython (<http://biopython.org/>)

### Bioinformatics

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)

## Languages

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

## Recommendation Contacts

- Jesús Espinal-Enriquez      Instituto Nacional de Medicina Genómica  
✉ jespinal@inmegen.gob.mx
- Enrique Hernández-Lemus      Instituto Nacional de Medicina Genómica  
✉ ehernandez@inmegen.gob.mx
- Claire Lesieur      Laboratoire Ampère, Université Claude Bernard Lyon 1/ IXXI, ENS-Lyon  
✉ claire.lesieur@ens-lyon.fr
- Gelasio Salazar      Instituto de Física, Universidad Autónoma de San Luis Potosí  
✉ gelasio.salazar@gmail.com