

Javier González Delgado

MATHEMATICIAN - STATISTICIAN

23/10/1996 - 1R1 Building, Office 207. Université Paul Sabatier, 118 Route de Narbonne, 31400 Toulouse.

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"It is true that a mathematician who is not somewhat of a poet, will never be a perfect mathematician"

Academic background

University of Toulouse III - Paul Sabatier

Toulouse (France)

PHD IN APPLIED MATHEMATICS

Oct. 2020 - Oct. 2023

- Manuscript: Statistical methods for the structural analysis of highly flexible proteins.
- Supervised by Pierre Neuval at Toulouse Institute of Mathematics (IMT) and by Juan Cortés at Laboratory for Analysis and Architecture of Systems (LAAS-CNRS).
- Funded by the LabEx CIMI.

University of Grenoble-Alpes

Grenoble (France)

MASTER IN STATISTICS AND DATA SCIENCE

Sep. 2019 - Aug. 2020

- Grade Point Average: 16.4/20.

University of Oviedo

Oviedo (Spain)

BACHELOR IN MATHEMATICS

Sep. 2014 - Jul. 2019

- Grade Point Average: 8.39/10.
- Bachelor's Thesis in Geometry and Topology of Manifolds.

University of Oviedo

Oviedo (Spain)

BACHELOR IN PHYSICS

Sep. 2014 - Jul. 2019

- Grade Point Average: 8.576/10.
- Bachelor's Thesis in C^* Algebras and their applications to Quantum Mechanics.

University of Grenoble-Alpes

Grenoble (France)

ERASMUS+ MOBILITY PROGRAMME

Sep. 2016 - Jun. 2017

- Courses in Licence 3 Physique and Master 1 Physique.

Publications and communications

PREPRINTS AND SUBMITTED MANUSCRIPTS

- González-Delgado J, Cortés J, Neuval P: *Post-clustering Inference under Dependency*, 2023 arXiv:2310.11822. [[arXiv](#)]
- González-Delgado J, Mier P, Bernadó P, Neuval P, Cortés J: *Statistical tests to detect differences between codon-specific Ramachandran plots*, 2022 bioRxiv 2022.11.29.518303. [[bioRxiv](#)]

JOURNAL PAPERS

- [EJS] González-Delgado J, González-Sanz A, Cortés J, Neuval P: *Two-sample goodness-of-fit tests on the flat torus based on Wasserstein distance and their relevance to structural biology*, Electron. J. Statist., 17(1): 1547–1586, 2023. [[url](#)]
- [JMB] González-Delgado J, Sagar A, Zanon C, Lindorff-Larsen K, Bernadó P, Neuval P, Cortés J: *WASCO: A Wasserstein-based statistical tool to compare conformational ensembles of intrinsically disordered proteins*, Journal of Molecular Biology, 435(14): 168053, 2023. [[url](#)]
- [JSB] González-Delgado J, Bernadó P, Cortés J, Neuval P: *Statistical proofs of the interdependence between nearest neighbor effects on polypeptide backbone conformations*. Journal of Structural Biology, 214(4): 107907, 2022. [[url](#)]

COMMUNICATIONS

School lectures

WASCO: A WASSERSTEIN-BASED STATISTICAL TOOL TO COMPARE CONFORMATIONAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS

- Lecture and practical session in Algorithms in Structural Bioinformatics (AlgoSB) winter school. "Intrinsic Disorder in Proteins". Institute of Scientific Studies of Cargèse, Corsica, France. November 2022.

Conferences and seminars

POST-CLUSTERING INFERENCE UNDER DEPENDENCY

- IRMAR (Institut de Recherche Mathématique de Rennes) statistics seminar. Rennes, France. Oct 2023.

STATISTICAL METHODS FOR THE INVESTIGATION OF HIGHLY-FLEXIBLE PROTEINS

- Centre de Biologie Structurale (CBS) seminar. Montpellier, France. May 2023.

WASCO: A WASSERSTEIN-BASED STATISTICAL TOOL TO COMPARE CONFORMATIONAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS

- GGMM (French Graphical and Molecular Modelling Group) 2023 - Young Modellers Conference, Toulouse, France. May 2023.

GOODNESS-OF-FIT TESTS ON THE FLAT TORUS BASED ON WASSERSTEIN DISTANCE AND THEIR RELEVANCE TO STRUCTURAL BIOLOGY

- Journée toulousaine "Statistique pour la Biologie", INRAE center Occitanie-Toulouse. November 2022.
- 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021), King's College London, December 2021.
- IRMAR PhD Probability and Statistics seminar, Rennes, France, November 2021.
- GdR ISIS meeting on Optimal Transport and Statistical Learning, Institut Henri Poincaré, November 2021.
- 52th Journées de Statistiques of the French Society of Statistics (SFdS), Côte d'Azur University, Nice, France, June 2021.

Scientific dissemination

- How to estimate cancer survival (an overview). Dissemination for non-statisticians. IMT PhD seminar, Toulouse, France, March 2022.

Schools and workshops

Algorithms in Structural Bioinformatics (AlgoSB) winter school.

I.S.S. of Cargèse (France)

INTRINSIC DISORDER IN PROTEINS

November 2022

Algorithms in Structural Bioinformatics (AlgoSB) winter school.

CIRM, Marseille (France)

MACHINE LEARNING METHODS TO ANALYZE AND PREDICT PROTEIN STRUCTURE, DYNAMICS AND FUNCTION

November 2021

Further research experience

International Agency for Research on Cancer (World Health Organization)

Lyon (France)

MASTER BIOSTATISTICS INTERNSHIP 'NET SURVIVAL AND COHORT DATA'

Mar. 2020 - Aug. 2020

Supervised by Vivian Viallon (IARC-WHO), Hadrien Charvat (IARC-WHO) and Grégoire Rey (INSERM).

University of Grenoble-Alpes and CHU Grenoble-Alpes (Centre Hospitalier Universitaire)

Grenoble (France)

RESEARCH PROJECT ON CARDIOLOGICAL PARAMETERS ANALYSIS AND PERFORMANCE MODELING OF UT4M RUNNERS.

Oct. 2019 - Feb. 2020

Supervised by Adeline Leclercq Samson (LJK, UGA).

Advising

MASTER (M1) INTERNSHIP (4MA INSA TOULOUSE)

- Flavie Kolb. *Construction et analyse statistique d'une base de données exhaustive de fragments à trois résidus extraits de structures protéiques*. June 2022 - September 2022. With Christophe Zanon (LAAS) and Juan Cortés (LAAS).

Teaching

Toulouse III - Paul Sabatier University

Toulouse (France)

BACHELOR IN MATHEMATICS

- Set theory I. Tutorials (TD). 28h, 2022 - 2023.
- Linear Algebra I. Lectures (Cours): 28h, Lectures and tutorials (Cours-TD): 64h. 2020 - 2023.
- Foundations of Mathematics. Tutorials (TD). 60h, 2020 - 2022.

BACHELOR IN STATISTICS AND DECISION INFORMATICS

- Statistical Inference. Practical works (TP). 25h, 2021 - 2023.

BACHELOR IN HIGHER EDUCATION AND RESEARCH ON MATHEMATICS

- Topology. Teaching assistant for tutorials (Colles). 2h, 2020 - 2021.

Other activities

Review activities

- **For journals in Statistics:** Electronic Journal of Statistics (2022).
- **For journals in Biology:** Protein Science (2023).

Local scientific animation

- Co-organizer of the IMT PhD seminar. September 2021 - June 2023. With Viviana Grasselli and Corentin Kilque.
- Co-organizer of the IMT PhD Statistics and Optimization seminar. September 2021 - June 2023. With Dominique Bontemps.
- Co-manager of *Les maths à Toulouse* Twitter account (IMT, EUR MINT and Labex CIMI). September 2021 - June 2023. With Viviana Grasselli and Isabelle Guichard.

Honors & Awards

2014 **Awarded**, Secondary school distinction award. 9.94/10.

Avilés (Spain)

2014 **Awarded**, Merit-based grant after University entrance examination. 13.464/14.

Asturias (Spain)

Programming skills

Programming languages Python, R.

Platforms Windows, Ubuntu.

Tools \LaTeX , Office Suite.

Language skills

Spanish Mother tongue

English C1 level certificate (CEFR)

French C1 level certificate (CEFR)