

# Marina Gardella

<https://marinagardella.github.io/>

Project scientist at Centro Pi - IMPA

# Curriculum Vitae

Last update: September 25, 2024

Date of Birth: September 3, 1992

Nationality: Uruguayan

✉ [marigardella@gmail.com](mailto:marigardella@gmail.com)

## EDUCATION

- 2020 - 2023 **Ph.D. in Mathematics, Centre Borelli, École Normale Supérieure Paris-Saclay, Université Paris-Saclay.** Thesis entitled *The avatars of noise in digital images and their use in image forensics*, written under the supervision of Dr. Miguel Colom, Prof. Jean-Michel Morel and Prof. Pablo Musé.
- 2017 - 2019 **Master in Mathematical Engineering, School of Engineering, Universidad de la República.** Thesis entitled *General Equilibria*, written under the supervision of Prof. Dr. Elvio Accinelli.
- 2011 - 2017 **Bachelor in Mathematics, School of Sciences, Universidad de la República.** Undergraduate thesis entitled *Dynamics on the Annulus*, written under the supervision of Prof. Dr. Jorge Iglesias.
- 2012 - 2016 **Bachelor in Economics, School of Economics Sciences and Administration, Universidad de la República.**

## EMPLOYMENT

- May 2024 - Present **Project Scientist**, Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brasil.
- Jan. 2024 - May 2024 **Postdoc Researcher**, Centre Borelli, École Normale Supérieure Paris-Saclay, Université Paris-Saclay.
- Sep. 2021 - May 2024 **Teaching Assistant**, Préparation au concours de l'agrégation externe de sciences économiques et sociales, École Normale Supérieure Paris-Saclay, Université Paris-Saclay.
- Sep. 2020 - Dec. 2023 **PhD Allocation**, Centre Borelli, École Normale Supérieure Paris-Saclay, Université Paris-Saclay.
- Sep. 2020 - Aug. 2021 **Teaching Assistant**, Institut Universitaire de Technologie de Sceaux, Université Paris-Saclay.
- Sep. 2019 - Sep. 2020 **Research Internship**, Centre Borelli, École Normale Supérieure Paris-Saclay, Université Paris-Saclay.
- Feb. 2014 - Feb. 2019 **Teaching Assistant**, Department of Mathematics, School of Engineering, University of the Republic
- May 2017 - Dec. 2017 **Individual Contractor**, United Nations Economic Commission for Latin America and the Caribbean (ECLAC).
- Feb. 2015 - Jul. 2016 **Teaching Assistant**, Department of Quantitative Methods, School of Economics Sciences and Administration, University of the Republic
- May 2013 - Jul. 2013 **Teaching Assistant**, Department of Mathematics, School of Sciences, University of the Republic

## RESEARCH STAYS

- April. 2024 **City University of Hong Kong.** Invited by Jean-Michel Morel.
- Aug. 2023 - Sep. 2023 **Duke University, USA.** Invited by Guillermo Sapiro.
- Dec. 2022 - Feb. 2023 **Universidad de la República, Uruguay.** Invited by Pablo Musé.
- Jan. 2019 - Mar. 2019 **Henri Poincaré Institute, France.** Participating in the mathematics of imaging thematic quarter.

Sep. 2018 **Universidad Autónoma San Luis Potosí, Mexico.** Invited by Elvio Accinelli.

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#### SUPERVISION

2024 (ongoing) Master supervisor (together with Pablo Musé) of Juan Pablo Sotelo, Facultad de Ingeniería, Universidad de la República.

2024 (ongoing) PhD supervisor (together with Pablo Musé, Quentin Bammey and Rafael Grompone) of Benjamin Loison, ENS Paris-Saclay.

2024 (completed) Master supervisor (together with Pablo Musé, Quentin Bammey and Rafael Grompone) of Benjamin Loison, ENS Paris-Saclay.

2023 (completed) Bachelor supervisor (together with Pablo Musé and Matías Tailanián) of Julian O’Flaherty, Rodrigo Paganini, Juan Pablo Sotelo and Julieta Umpierrez; Facultad de Ingeniería, Universidad de la República.

2020 (completed) Bachelor supervisor (as *encadrant junior*, together with Miguel Colom) of Enguérand Chary and Syrine Kalleli; Centre Borelli, ENS Paris-Saclay.

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#### AWARDS AND GRANTS

2023 Top three best posters award at KHIPU, Latin America Meeting in Artificial Intelligence.

2022 Best student paper award at the MIBriefs Workshop.

2021 Best student paper award at the 9th IEEE International Workshop on Biometrics and Forensics (IWBF).

2017 - 2019 PhD grant given by *Région Île de France*.

2017 - 2019 Masters grant given by the Universidad de la República.

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#### FOREIGN LANGUAGES

English **University of Michigan** Certificate of Proficiency in English (Nov. 2010).

French **Delf B2** (Nov. 2010).

Portuguese Three-year course (2008-2010). Basic communication level (written and oral).

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## List of Publications

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### CONFERENCE AND JOURNAL

- **Normalized vs Diplomatic Annotation: A Case Study of Automatic Information Extraction from Handwritten Uruguayan Birth Certificates.** N. Bottaioli, S. Tarride, J. Anger, S. Mowlavi, M. Gardella, A. Tadros, G. Facciolo, R. Grompone von Gioi, C. Kermorvant, J.-M. Morel, J. Preciozzi. *International Conference on Document Analysis and Recognition, 2024.*
- **MaskSim: Detection of Synthetic Images by Masked Spectrum Similarity Analysis.** Y. Li, Q. Bammey, M. Gardella, T. Nikoukhah, J.-M. Morel, M. Colom, R. Grompone von Gioi. *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2024.*
- **Image forgery detection based on noise inspection: analysis and refinement of the Noisesniffer method,** M. Gardella, P. Musé, M. Colom, J.-M. Morel. *Image Processing On Line (IPOL), 2024.*
- **Diffusion models meet image counter-forensics,** M. Tailanián, M. Gardella, A. Pardo, P. Musé. *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024.*
- **PRNU-based source camera statistical certification,** M. Gardella, P. Musé, M. Colom, J.-M. Morel, D. Perraud. *IEEE International Workshop on Information Forensics and Security (WIFS), 2023.*
- **A Contrario Detection of H.264 Video Double Compression,** Y. Li, M. Gardella, Q. Bammey, T. Nikoukhah, R. Grompone von Gioi, M. Colom, J.-M. Morel. *IEEE International Conference on Image Processing (ICIP), 2023.*
- **Détection a contrario de la double compression vidéo et application préliminaire à la détection de deepfakes,** Y. Li, M. Gardella, Q. Bammey, T. Nikoukhah, R. Grompone von Gioi, M. Colom, J.-M. Morel. *Groupe de Recherche en Traitement du Signal et des Images (GRETSI), 2023.*
- **Forensic Similarity for Source Camera Model Comparison,** M. Gardella, P. Musé. *Image Processing On Line (IPOL), 2022.* [Best student paper award – MLBriefs 2022.](#)
- **Image Forgery Detection via Forensic Similarity Graphs,** M. Gardella, P. Musé. *Image Processing On Line (IPOL), 2022.* [Best student paper award – MLBriefs 2022.](#)
- **Video Signal-Dependent Noise Estimation via Inter-Frame Prediction,** Y. Li, M. Gardella, Q. Bammey, T. Nikoukhah, R. Grompone von Gioi, M. Colom, J.-M. Morel. *IEEE International Conference on Image Processing (ICIP), 2022.*
- **The approach to reproducible research of the Image Processing On Line (IPOL) journal,** A. Nicolaï, Q. Bammey, M. Gardella, T. Nikoukhah, O. Boulant, I. Bargiotas, N. Monzón, C. Truong, B. Kerautret, P. Monasse, M. Colom. *Informatio, 2022.*

- **The Impact of JPEG Compression on Prior Image Noise**, M. Gardella, T. Nikoukhah, Y. Li, Q. Bammey. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2022.
- **Non-Semantic Evaluation of Image Forensics Tools: Methodology and Database**, Q. Bammey, T. Nikoukhah, M. Gardella, R. Grompone von Gioi, M. Colom, J.-M. Morel. *IEEE/CVF Winter Conference on Applications of Computer Vision*, 2022.
- **Forgery Detection in Digital Images by Multi-Scale Noise Estimation**, M. Gardella, P. Musé, J.-M Morel, M. Colom. *Journal of Imaging*, 2021.
- **NoiseSniffer: a Fully Automatic Image Forgery Detector Based on Noise Analysis**, M. Gardella, P. Musé, J.-M Morel, M. Colom. *9th IEEE International Workshop on Biometrics and Forensics (IWBF)*, 2021. [Best paper award – IWBF 2021.](#)

#### BOOK CHAPTER

- **How to Reconstruct the History of a Digital Image, and of Its Alterations, Multimedia Security 1: Authentication and Data Hiding**, Q. Bammey, M. Colom, M. Gardella, R. Grompone von Gioi, J.-M. Morel, T. Nikoukhah and D. Perraud. Directed by William Puech. *John Wiley & Sons, Inc.*, 2022.
- **Comment reconstruire l’histoire d’une image digitale, et de ses altérations, Sécurité Multimédia vol. 1**, Q. Bammey, M. Colom, M. Gardella, R. Grompone von Gioi, J.-M. Morel, T. Nikoukhah and D. Perraud. Directed by William Puech. *ISTE*, 2021.

#### SELECTED TALKS AND WORKSHOPS

- M. Gardella (2023). Detección de imágenes falsificadas. WIDS, Guayaquil 2023. June, 2023.
- M. Gardella (2023). The devil wears Prada and the Pope Balenciaga A pitch on how to spot fake images. VivaTech, Paris 2023. June, 2023.
- M. Gardella (2023). Noisesniffer: image forgery detection through noise analysis (Poster presentation). KHIPU, Montevideo 2023. March, 2023. [Top three best posters award.](#)
- M. Gardella (2022). Procesamiento de imágenes falsas Women in Data Science (WIDS) Montevideo 2022. April, 2022.
- M. Gardella, T. Nikoukhah, Q. Bammey (2021). Détection automatique de la falsification d’images. Congrès des Jeunes Chercheuses et Chercheurs en Mathématiques Appliquées (CJC-MA) 2021. October 27-29, 2021, École polytechnique, Palaiseau, France.
- M. Gardella et al. (2021). Enhanced Image Forensic Tools for Fact-Checkers. Conference for Truth and Trust Online (TTO) 2021. October 7 and 8, 2021. Online.
- M. Gardella (2017). Estimation of the Inflationary feedback coefficient in Uruguay 1985-2017. IV Conference in applied statistics. October 2017. La Paloma, Uruguay.