CELIA RUBIO-MADRIGAL

🌐 celrm.github.io   ✉ celia.rubio-madrigal@cispa.de   in celia-rubio-madrigal

EXPERIENCE 💼

Doctoral researcher – *CISPA Helmholtz Center for Information Security*   **2023-now**
– Group: 🌐 Relational Machine Learning Lab. Supervisor: Dr. Rebekka Burkholz.

Teaching assistant / Laboratory demonstrator – *University of Strathclyde*   **2023**
– "CS310 Foundations of AI" for Year 3 BSc Computer Science. Lecturer: Dr. Andrew Abel.

Consultant Developer Intern – *Guidewire Software*   **2021**
– Design of an intelligent search engine to find raised issues. Tools: Javascript/Node.js, MySQL, HTML+CSS.

EDUCATION 🎓

PhD in Computer Science – *Universität des Saarlandes (Saarbrücken, Germany)*   **2023-now**

MSc in Advanced CS with AI – *University of Strathclyde (Glasgow, UK) – 8.57/10 (with Distinction)*   **2022-23**
– Fully funded by 🌐 "la Caixa" Foundation Postgraduate Fellowship. Earned the Dept. Best Overall Prize.

BSc in Computer Science – *Universidad Complutense de Madrid (Spain) – 9.16/10*   **2017-22**
– Secretary of the Computer Science Student Council and member of the Faculty Board 2020-22.

BSc in Mathematics – *Universidad Complutense de Madrid (Spain) – 9.08/10*   **2017-22**

PUBLICATIONS 📄

★ GNNs getting ComFy: Community and feature similarity guided rewiring. Celia Rubio-Madrigal*, Adarsh Jamadandi*, Rebekka Burkholz. 13th International Conference on Learning Representations (ICLR), 2025. 📄

★ Spectral graph pruning against over-squashing and over-smoothing. Adarsh Jamadandi*, Celia Rubio-Madrigal*, Rebekka Burkholz. 38th Conference on Neural Information Processing Systems (NeurIPS), 2024. 📄

• Rendering string diagrams recursively. Celia Rubio-Madrigal, Jules Hedges. arXiv, 2024. 📄

• Analysis of a neural network for the identification of complex Boolean functions. Celia Rubio-Madrigal. Bachelor's thesis at Universidad Complutense de Madrid, 2022. 📄

• Serialismo y matemáticas (I) 📄, (II) 📄, (III) 📄, (IV) 📄. Celia Rubio-Madrigal. DivulgaMAT, 2019.

LANGUAGES 🅰🇦

Spanish – Native   **English** – TOEFL iBT 110/120 **(2021)**   **German** – Goethe-Zertifkat B1 **(2017)**

INVITED AND CONTRIBUTED TALKS 🎤

- Seminar of the TUWien ML Research Unit – visit and invited talk: ⊕ *Vienna, Austria.* **TBD**
- International Conference on Network Science (NetSci): *Maastricht, Netherlands.* **Jun 2025**
- Cohere For AI: ⊕ *Rewiring Graph Neural Networks: When less is more and structure matters.* ▶ **Feb 2025**
- Helmholtz AI Conference: AI for Science (HAICON): ⊕ *Düsseldorf, Germany.* **Jun 2024**

AWARDS 🏅

- Best Overall Performance Prize: *Top student in MSc Advanced CS at University of Strathclyde.* **Oct 2023**
- Nova 111 Student List: ⊕ *Top 10 talents under 25 in Computer Science in Spain.* **Mar 2023**
- 9th Heidelberg Laureate Forum: 📰 *HLFF Spotlight,* 📰 *Tribuna Complutense.* **Sep 2022**
- "la Caixa" Foundation Postgraduate Fellowship: 📰 *El País,* 📰 *El Plural,* 📺 *TeleMadrid.* **Jun 2022**

Undergraduate and Pre-university

- Blas Cabrera Summer School for top undergrads in Spain: ⊕ *Menéndez Pelayo International University (UIMP).*
- Becas de Excelencia: *Excellence Grants for undergraduate students from Com. Madrid (2100€).*
- SWERC contestant 2022 – Competitive Programming: ⊕ *ICPC Southwestern Europe Regional Contest in Italy.*
- Premio Extraordinario de Bachillerato: ⊕ *Top 25 in general-content exam in Com. Madrid (1000€).*
- Leading Program "la Caixa": *Top 20 university admission marks in Com. Madrid.*
- EGMO contestant 2017 – Math Olympiad: ⊕ *European Girls' Mathematical Olympiad in Switzerland.*

OTHER PROJECTS 💡

International Mathematics Olympiads – *Organization and volunteering* **2018-now**
– IT at the European Girls' Mathematical Olympiad (EGMO): ⊕ Kosovo 2025, Georgia 2024, Slovenia 2023.
– Deputy Leader of Spain at EGMO 2022 in Hungary and PAGMO 2021.

Departmental collaboration grant – *Ministerio de Educación, Universidad Complutense de Madrid* **2021-22**
– Identification of boolean functions that need big circuits to be computed, with Ismael Rodríguez Laguna.

Introduction to research ICMAT-Severo Ochoa grant – *Instituto de Ciencias Matemáticas* **2021**
– Differential geometry methods in Machine Learning applications, with David Martín de Diego. ▶

LaTeX package: ddphonism – *Contained in MiKTeX and TeXLive music bundles.* ‹/› **2019**

Professional Music Degree in Baroque Recorder – *Conservatorio Profesional de Música Arturo Soria* **2006-16**