CELIA RUBIO-MADRIGAL

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💼 EXPERIENCE

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

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

🔖 PUBLICATIONS

- Spectral pruning against over-squashing and over-smoothing. Adarsh Jamadandi*, Celia Rubio-Madrigal*, Rebekka Burkholz. arXiv:2404.04612. (2024) 🔗

- Rendering string diagrams recursively. Celia Rubio-Madrigal, Jules Hedges. arXiv:2404.02679. (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) 🔗, and Re-escalando música 🔗. Celia Rubio-Madrigal. DivulgaMAT: Música y matemáticas. (2019)

🎓 EDUCATION

PhD in Computer Science – *Universität des Saarlandes (Saarbrücken, Germany)*   **2023-now**
– Associated with CISPA Helmholtz Center for Information Security. Topic: Graph Neural Networks.

MSc in Advanced CS with AI – *University of Strathclyde (Glasgow, UK) – 8.57/10*   **2022-23**

BEng in Computer Science – *Universidad Complutense de Madrid (Spain) – 9.16/10*   **2017-22**
– Secretary of the Computer Science Student Council 2021-22.

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

⫴ PROJECTS AND ACTIVITIES

International Mathematics Olympiads – *Organization and volunteering*   **2019-now**
– IT at the European Girls' Mathematical Olympiad (EGMO): 2023 in Slovenia, 2024 in Georgia.
– Deputy Leader of Spain at EGMO 2022 in Hungary and PAGMO 2021.
– Guide at the Iberoamerican Mathematical Olympiad 2019 in Spain/Portugal.

Departmental collaboration grant – *Universidad Complutense de Madrid*   Nov 2021-Jun 2022

– Grant: Beca de colaboración from Ministerio de Educación at Dept. Software Systems and Computation.

– Identification of boolean functions that need big circuits to be computed, with Ismael Rodríguez Laguna.

Mathematics research grant – *Instituto de Ciencias Matemáticas (ICMAT).*   Sep-Nov 2021

– Grant: Ayudas de introducción a la investigación ICMAT-Severo Ochoa 𝒮.

– Differential geometry methods in Machine Learning applications, with David Martín de Diego.

LATEX package: ddphonism 𝒮 – *Contained in MiKTeX and TeXLive*   2019

Music Conservatory in Recorder – *Conservatorio Profesional de Música Arturo Soria*   2006-16

✪ HONOURS AND AWARDS

• Best Overall Performance Prize: *CIS Dept. Prize on the MSc in ACS at Strathclyde*   Oct 2023

• Nova 111 Student List 𝒮: *Top 10 talents under 25 in Computer Science in Spain*   Mar 2023

• 9th Heidelberg Laureate Forum: *Young Researcher in Mathematics*   Sep 2022

  – Personal interviews for HLFF Spotlight: 9th HLF 𝒮 and Tribuna Complutense 𝒮.

• ''la Caixa'' Foundation Postgraduate Fellowship 𝒮: *Fully funded MSc*   Jun 2022

  – Interviews in national newspapers El País 𝒮, El Plural 𝒮, and TV channel Telemadrid 𝒮.

Undergraduate studies:

• 6th Aula de Verano Blas Cabrera: *Seminar at UIMP for best undergrad records in Spain*   Aug 2022

• SWERC contestant 𝒮: *ICPC Southwestern Europe Regional Contest (Italy)*   Apr 2022

• Beca de Excelencia: *Excellence Grants for undergraduate students (2100€)*   2018-22

Pre-undergraduate studies:

• Premio Extraordinario de Bachillerato: *Top 25 for this exam in Com. Madrid (1000€)*   Jul 2017

• Leading Program ''la Caixa'': *Top 20 university admission marks in Com. Madrid*   Jun 2017

• Baccalaureate of Excellence with Honours: *IES San Mateo – 10/10*   May 2017

• EGMO contestant 𝒮: *European Girls' Mathematical Olympiad (Switzerland)*   Apr 2017

• ESTALMAT: *2-year mathematics talent program for 25 students in Com. Madrid*   2012-14

💬 LANGUAGES

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