

# Hugo Demaret

## Curriculum Vitae

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### Education

- 2025-2028 **PhD, Computer Science**, *Université de Caen Normandie*, Caen, France  
Supervisor: Paul Dorbec  
Subject: Graph theory and combinatorics  
Title: *Domination in planar graphs and product graphs.*
- 2024-2025 **M2 MPRI – Master Foundation of Computer Science**, *École polytechnique – Institut polytechnique de Paris*, Paris, France, with Honours  
Courses: Analysis of algorithms (analytical combinatorics), Algorithms and combinatorics for geometric graphs, Advanced graph theory, Randomness in complexity (Approximation algorithms), Algorithmic aspects of combinatorics, Foundations of network models, Parametrised complexity and Theory of practical graphs algorithms. <https://wikimpri.dptinfo.ens-cachan.fr/doku.php?id=cours:cours2>.
- 2023-2024 **M1 MPRI – Master Foundation of Computer Science**, *École polytechnique – Institut polytechnique de Paris*, Palaiseau & Paris, France  
Courses: Advanced algorithms, Computational logic (type theory), Introduction to cryptology, Randomisation in computer science, Algorithmic geometry, Information theory, Distributed computing, Advanced cryptology.
- 2020-2023 **Bachelor of Science, Computer Science**, *Université Paris Cité*, Paris, France, with Highest Honours  
Rank: 3/117
- 2019-2020 **Culinary arts diploma (CAP cuisine)**, *Ecole de Paris des Métiers de la Table (EPMT)*, Paris, France  
Apprenticeship at Le Moulin Rouge
- 2017-2018 **Baccalauréat Scientifique (Sixth form diploma)**, *Lycée Eugène Ionesco*, Issy les Moulineaux, France

### Research

- 2025-2028 **PhD Student**, UNIVERSITÉ DE CAEN, CNRS, GREYC (UMR 6072), Caen, France  
Supervisors: Paul Dorbec.  
Subject: *Domination in planar graphs and product graphs.*
- March-August 2025 **Master Parisien de Recherche en Informatique internship**, UNIVERSITÉ DE CAEN, CNRS, GREYC (UMR 6072), Caen, France  
Supervisors: Paul Dorbec.  
Subject: *Domination in maximal planar graphs.*
- April-July 2024 **École polytechnique research internship**, UNIVERSITÉ PARIS SACLAY, CNRS, LABORATOIRE INTER-DISCIPLINAIRE DES SCIENCES DU NUMÉRIQUE (UMR 9015), Gif-sur-Yvette, France  
Supervisors: Hoang La, François Pirot.  
Title: *Fractional domatic number and minimum degree. Soon to be submitted for publication.*
- October 2023-February 2024 **École polytechnique research project**, ÉCOLE POLYTECHNIQUE, COMPUTER SCIENCE DEPARTMENT, Palaiseau, France  
Supervisor: Théo Pierron.  
Title: *Compact local certification of MSO properties for several tree-like parameters.*
- May-July 2023 **Research internship in theoretical computer science**, UNIVERSITÉ GUSTAVE EIFFEL, LABORATOIRE D'INFORMATIQUE GASPARD MONGE (UMR 8049), Champs-sur-Marne, France  
Supervisors: Vincent Jugé, Cyril Nicaud and Pablo Rotondo.  
Title: *Theoretical analysis of different data structures in different programming languages.*  
See online: <https://hugodemaret.fr/research>
- May-August 2022 **Research internship in Artificial Intelligence**, UNIVERSITÉ PARIS CITÉ, LIPADE, Paris, France  
Supervisors: Jérôme Delobelle and Jean-Guy Mailly.  
Title: *Principle-based Analysis of Ranking-based Semantics for Incomplete Argumentation Frameworks.*  
See online: <https://hugodemaret.fr/research>

### Publications

#### Conferences

- 2025 **Fractional domatic number and minimum degree.** With Quentin Chuet, Hoang La, François Pirot.  
*Accepted at EUROCOMB'25*

## Preprints

- 2025 **Fractional domatic number and minimum degree.** With Quentin Chuet, Hoang La, François Pirot.  
<https://arxiv.org/abs/2508.19617>

## Responsibilities

- 2025- **(Co)-responsible and creator**, *Young researchers seminar in graph theory*, Responsibility shared with Margaux Marseloo (University of Geneva) and Eileen Robinson (Université Libres de Bruxelles)  
The young researchers seminar in graph theory is a seminar organised every three months by non-permanent members (PhD students, postdocs, ...) of the Groupe de Travail Graphes (GT Graphes) of the Groupe de Recherche en Informatique et ses Mathématiques (GDR IFM) <https://seminar.graphnode.fr>.

## Teaching

- 2025-2026 **Teaching assistant**, UNIVERSITÉ DE CAEN, UFR SCIENCES, Caen, France, Algorithms 1.  
Second year Bachelor's degree in Computer Science.
- 2023-2024 **Main supervisor (2nd year of Bachelor's degree)**, UNIVERSITÉ PARIS CITÉ, COMPUTER SCIENCE AND MATHEMATICS DEPARTMENT, Paris, France, Project by Ismaël Bouarfa, Nicolas Fontaine, Nicolas Schuldt and Jennifer Zahora  
The students achieved a top mark of 19/20. Their project: <https://pypi.org/project/fftrack/>.
- 2023-2024 **Design of an Advanced Algorithms course (3rd year of Bachelor's degree)**, UNIVERSITÉ PARIS CITÉ, COMPUTER SCIENCE AND MATHEMATICS DEPARTMENT, Paris, France  
Course notes, exercises and slides on hash tables.  
See <https://hugodemaret.fr/teachings> and <https://helios2.mi.parisdescartes.fr/~lomn/Cours/AV/>.
- 2023-2024 **Tutorials and creation of resources in Advanced Databases (3rd year of Bachelor's degree)**, UNIVERSITÉ PARIS CITÉ, COMPUTER SCIENCE AND MATHEMATICS DEPARTMENT, Paris, France
- 2022-2023 **Co-coach for the ICPC-SWERC programming contest**, UNIVERSITÉ PARIS CITÉ, COMPUTER SCIENCE AND MATHEMATICS DEPARTMENT, Paris, France
- 2021-2022 **Tutor in mathematics and computer science**, UNIVERSITÉ PARIS CITÉ, Paris, France
- 2021-2022 **Speaker**, UNIVERSITÉ PARIS CITÉ, COMPUTER SCIENCE AND MATHEMATICS DEPARTMENT, Paris, France,  
Speaker at the opening course. Prevention concerning data and online security.  
See online: <https://hugodemaret.fr/teachings>.

## Talks

- June 2025 **AMACC team's seminar**, UNIVERSITÉ DE CAEN, GREYC, Caen, France, Contributed talk (60 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/TQrF3dmzZPoZBtP>.
- April 2025 **Liverpool TCS seminar (online)**, UNIVERSITY OF LIVERPOOL, DEPARTMENT OF COMPUTER SCIENCE, Liverpool, United Kingdom, Contributed talk (60 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/XsnKx8ToiQCYgqN>.
- January 2025 **ACiD seminar (online)**, DURHAM UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE, Durham, United Kingdom, Invited talk (60 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/axXAxXMT8t9ABQ5>.
- November 2024 **Journées Graphes et Algorithmes 2024**, UNIVERSITÉ DE BOURGOGNE, Dijon, France, Contributed talk (15 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/YBfqDztSfEHyCZo>.  
Annual national graph theory conference in France, see <https://jga2024.sciencesconf.org/>.
- November 2024 **Institut de Recherche en Informatique Fondamentale seminar**, UNIVERSITÉ PARIS CITÉ, Paris, France, Contributed talk (15 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/YBfqDztSfEHyCZo>.
- June 2024 **Graphs, Algorithms and Combinatorics seminar**, UNIVERSITÉ PARIS SACLAY, Gif-sur-Yvette, France, Contributed talk (25 minutes)  
*Fractional domatic number and minimum degree.* Slides: <https://cloud.defi-lovelace.fr/s/qmNYPb2k7ZANxLn>.

- April 2024 **Graphs, Algorithms and Combinatorics seminar**, UNIVERSITÉ PARIS SACLAY, Gif-sur-Yvette, France, Contributed talk (45 minutes)  
*Compact local certification of MSO properties for several tree-like parameters.* Slides: <https://cloud.defi-lovelace.fr/s/D6t8H4YCDq2GaCt>.
- June 2023 **Algo in Programming Languages**, INSTITUT HENRI POINCARÉ (IHP), Paris, France, Kickoff Meeting (*Fast ?*) *Indexed Hashmaps in the Rust programming language.* Slides: <https://cloud.defi-lovelace.fr/s/S3ojeR882fZ3RgB>.

## Other scientific events attended

- November 2025 **Journées Graphes et Algorithmes 2025**, UNIVERSITÉ PARIS CITÉ, Paris, France  
<https://www.irif.fr/~jga2025/>.
- June 2025 **Ecole Jeunes Chercheuses en Informatique Fondamentale et ses Mathématiques**, UNIVERSITÉ DE CAEN, Caen, France  
<https://ejcifm2025.sciencesconf.org/>.
- June 2025 **14ème Journées polyèdres et optimisation combinatoire**, UNIVERSITÉ DE CAEN, Caen, France  
<https://jpoc14.sciencesconf.org/>.
- November 2023 **Journées Graphes et Algorithmes 2023**, UNIVERSITÉ CLAUDE BERNARD LYON 1, Lyon, France  
<https://jga2023.sciencesconf.org/>.
- July 2023 **Algo in Programming Languages**, Saint Julien en Born, France, General Meeting  
Small groups research workshops. Presentation of works in progress.
- June 2023 **Combinatorial Pattern Matching 2023**, UNIVERSITÉ GUSTAVE EIFFEL, Marne-la-vallée, France  
Also helped in the organisation. <https://cpm2023.u-pem.fr/index.html>.
- June 2023 **Graphs in Paris**, UNIVERSITÉ PARIS CITÉ, Paris, France  
<https://www.irif.fr/~gtp/>.
- November 2022 **Journées Graphes et Algorithmes 2022**, ÉCOLE NORMALE SUPÉRIEURE, Paris, France  
<https://jga2022.sciencesconf.org/>.

## Contests

- 2021-2023 **ICPC SWERC programming competition**, UNIVERSITÉ PARIS CITÉ, Paris, France | Politecnico Di Milano, April 2022, February 2023, Honourable mention

## University Citizenship Contributions

- 2024-2025 **Master 2 MPRI**, ÉCOLE POLYTECHNIQUE AND PARTNERS, Paris, France  
Organiser of the graph theory students' seminar.
- 2021-2023 **Elected Student Representative to the Teaching Committee of the Faculty of Sciences**, UNIVERSITÉ PARIS CITÉ, Paris, France
- 2021-2023 **Student Representative to the Improving Committee of the Computer Science bachelor**, UNIVERSITÉ PARIS CITÉ, Paris, France  
Annual gathering of staff and a selected few students, committed to enhancing academics and student life on the programme.
- 2021-2022 **Treasurer**, UNIVERSITÉ PARIS CITÉ, Paris, France, Mathematics and Computer Science students' association

## Volunteering

- January 2024 **South Western European Regional Contest (SWERC)**, SORBONNE UNIVERSITÉ, Paris France, Volunteer.
- 2013 **Humanitarian mission**, KIDS WITH A CAUSE, Rodrigues, Mauritius, Volunteer.