Phone: +447383755005
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Webpage: https://conj34.github.io

Domenico Mergoni

Curriculum

Education

2020 - now **PhD in Discrete Mathemathics**, London School of Economics, UK.
Expected end: Autumn 2024

2018 - 2020 **MSc in Pure Mathematics**, ETH Zürich, Switzerland.
GPA: 5.77/6 'cum laude'

2015 - 2018 **BSc in Pure Mathematics**, University of Pisa, Italy.
GPA: 110/110

Working Experiences

- Teaching (at London School of Economics):
  - Statistics and Machine Learning (2022-23):
    - MA310: Machine Learning,
    - MA455: Reinforcement Learning (MSc course).
  - Finance (2023):
    - FM250: Finance,
    - ME200: Comp. Methods in Financial Mathematics.
  - Management (2022-23) - Lecturer:
    - Pre-sessional course for LSE Global Master's in Management,
    - Pre-sessional course for LSE MSc Management programme.
  - Mathematics (2020-22):
    - MA423: Fundamentals of Operations Research,
    - MA210: Discrete Mathematics,
    - MA103: Introduction to Abstract Mathematics,
    - ME306: Real Analysis.
- Other:
  - Managerial positions:

2021-now **Senior Subwarden** for LSE residence. *Lead of a 10-people team to oversee 600 students' mental wellbeing.*

2023 **Main organiser** for PCC2024. *Lead of a 4-people team to organise the main Postgraduate UK conference in Combinatorics.*

  - Internships:

2020 **PigeonLine**. *Work on applications of graph theory to statistical analysis of correlations.*

2019 **Operations Team**, ETH Entrepreneur Club.

Coding

Python Advanced, *(Codeforces; GTA of MSc RL course)*
C, C++ Intermediate,
R Intermediate, *(GTA of Machine Learning with R)*
LaTeX Advanced.

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Awards and Grants

* 2022 **LMS Computer Science Small Grant**, London Mathem. Society.
2021 **LSE Contribution Award**, Dept. of Maths, LSE.

Papers

Work in progress

* 2023++ **Convergence of Policy Gradient Methods to Nash Equilibria in Repeated Games**, with G. Ashkenazi-Golan, E. Plumb.
2023++ **Partition universality for hypergraphs of bounded degeneracy and degree**, with P. Allen, J. Böttcher.
2023++ **Product free sets in** $[n]$, with L. Mattos, O. Parczyk.

On Arxiv

2023 **Graphs with large minimum degree and no small odd cycles are** 3**-colourable**, with J. Böttcher, N. Frankl, O. Parczyk, J. Skokan., https://arxiv.org/abs/2302.01875.
* 2022 **The Ramsey numbers of squares of paths and cycles**, with P. Allen, B. Roberts, J. Skokan, https://arxiv.org/abs/2212.14860.
2022 **Density of small diameter subgraphs in** K_r**-free graphs**, with E. K. Hng, https://arxiv.org/abs/2207.14297.

Relevant Talks and Conferences

Organiser

* 2024 **PCC**, Main Organiser, University of London (LSE, UCL, KCL),
2022/23 **PhD CGO Seminar**, *PhD Organiser*, LSE.

Summer Schools

* 2023 **EEML**, *Invited participant*, Summer School organised by DeepMind.
2023 **Charles University Spring School**, *Invited Participant.*

Speaker

10/2023 **Seminar**, *Product-free sets of* $[n]$, @LSE
09/2023 **Invited Speaker**, *Ramsey number of* P_n^2, @DMV Ilmenau
08/2023 **Contributed Talk**, *Hypergraph partition universality*, @EuroComb Prague
04/2023 **Invited Speaker**, *Ramsey number of* P_n^2, @Charles Uni. Spring School
03/2023 **Contributed talk**, *Chromatic profile of* $\{C_3, \dots, C_{2k-1}\}$, @PCC 2023
07/2022 **Contributed talk**, *Chromatic profile of* $\{C_3, \dots, C_{2k-1}\}$, @RSA Poznan
07/2022 **Contributed talk**, *Ramsey number of* P_n^2, @ICGT Montpellier
06/2022 **Invited seminar**, *Ramsey number of* P_n^2, @TU Hamburg
11/2020 **PhD Seminar**, *About the Pentagon Conjecture*, @LSE
06/2019 **Workshop**, *Permutation patterns*, Partecipant, UZH
05/2019 **Seminar**, *Algebraic Combinatorics and Sperner Property*, UZH

Languages (ordered by proficiency)

Italian Native
English C2 level, IELTS test score: 8.0 on July 2018
Spanish B1 level