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
PhD Advisors: Prof. Peter Allen, Dr Ahmad Abdi
Expected end: Autumn 2024

2018 - 2020 **MSc in Pure Mathematics**, ETH Zürich, Switzerland
Overall GPA: 5.77/6 'cum laude' on 10 August 2020

2015 - 2018 **BSc in Pure Mathematics**, University of Pisa, Italy
Final grade 110/110 on 14 July 2018

Coding

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

Languages (ordered by proficiency)

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

Working Experiences

2020 - now **Senior Subwarden** for LSE residence. *Lead of a 10-people team to oversee 600 students' mental wellbeing.*

2021 **Internship at PigeonLine.** *Work on applications of graph theory to statistical analysis of correlations.*

Teaching

Statistics and Machine Learning

2022/23 Teaching Assistant (GTA) for *MA310: Machine Learning* at LSE
2022/23 GTA for *MA455: Reinforcement Learning* (MSc course) at LSE

Finance

2023 GTA for *FM250: Finance* at LSE
2023 GTA for *ME200: Comp. Methods in Financial Math.s* at LSE

Mathematics

2022 GTA for *MA210: Discrete Mathematics* at LSE
2020-22 GTA for *MA103: Introduction to Abstract Mathematics* at LSE
2021 GTA for *MA423: Fundamentals of Operations Research* at LSE
2021 GTA, for *ME306: Real Analysis* at LSE Summer School

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Management (pre-sessional)

2022 Pre-sessional course for LSE Global Master's in Management

2022; 23 Pre-sessional course for LSE MSc Management programme

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.

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 (Supervised by V. Féray).