

# Domenico Mergoni Cecchelli

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## Curriculum Vitae

### Contact Information

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### Education

- 2020 - now **PhD in Discrete Mathematics**, London School of Economics, UK  
PhD Advisors: Prof. Peter Allen, Dr Ahmad Abdi  
*Expected end: September 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 July 2018

### Coding

Python Advanced, (*Codeforces; GTA of MSc level Reinforcement Learning course*)  
C, C++ Intermediate  
R Intermediate, (*GTA of Machine Learning with R*)  
L<sup>A</sup>T<sub>E</sub>X Advanced

### Languages (ordered by proficiency)

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

### Internship Experiences

- 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 Lecture Moderator for *FM250: Finance* at LSE Summer School
- 2021 GTA, for *ME306: Real Analysis* at LSE Summer School
- [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

- 2022/23 **PhD CGO Seminar**, *PhD Organiser*, LSE.
- 2024 **PCC**, Main Organiser, University of London.

### Speaker

- 09/2023 **Invited Speaker**, *TBA*, @DMV Ilmenau.
- 08/2023 **Contributed Talk**, *TBA*, @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*, Participant, UZH.
- 05/2019 **Seminar**, *Algebraic Combinatorics and Sperner Property*, UZH (Supervised by V. Féray).