

Mahmoud Abdelkader

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Personal information

Date of birth: 22 Dec. 1997

Citizenship: Egyptian

Education

Apr.2024 - Jun.2024 **Fully-funded internship**, *Heidelberg University*, Heidelberg, Germany. [Invited to Heidelberg University's HGS MathComp visiting program](#) for a research project. Financial support and accommodation provided. Supervised by Dr. Michael Winckler. Stay scheduled for 6 weeks starting around April 21, 2024. Enhancing academic experience with international research collaboration.

Sep. 2023 - Jul. 2024 **Master's degree**, *University of Cape Town, AIMS*, Cape Town, South Africa (**Fully Funded Scholarship**)

Sep. 2022 - May 2023 **Pre Master**, *Helwan University*, Helwan, Egypt

2016 - 2020 **Bachelor of Science in Mathematics**, *Helwan University*, Helwan, Egypt

Total GPA =3.3/4. Graduated with "very Good" (82.47%).

Graduation \ Final year project: [Interval Analysis](#).

Research Interests

Optimization and Operational Research:

Feb.2024 - Jul.2024 I was working on my master's project titled "Mathematical Modelling and Implementation of Game Strategy for the Board Game Quoridor." This project involves developing and evaluating strategic algorithms, such as Minimax, Alpha-Beta Pruning, and Monte Carlo Tree Search, to master the game dynamics and optimize decision-making processes.

Mar. 2024 Participated in a 3-week workshop at AIMS South Africa during my master's program, focusing on linear and nonlinear optimization. Topics covered included optimality conditions, KKT conditions, constraint qualifications, and solution techniques.

2018 - 2019 Achieved excellent grades in an Operational Research (OR) course during my bachelor's degree at Helwan University, demonstrating a strong foundation in that field.

Teaching and Mentoring Experience

Sep. 2024 - Present **Assistant Lecturer**, *Canadian International College "CIC"*, Part Time.

Sep. 2024 - Present **Assistant Lecturer**, *El-Gazeera Higher Institute for Engineering and Technology*, Cairo.

Oct. 2022 - Aug.2023 **Teaching Assistant**, *El-Gazeera Higher Institute for Engineering and Technology*, Cairo.

Sep. 2020 - Present **Freelance Mathematics lecturer**, *Online teaching*.

Sep. 2020 - Apr. 2021 **Teaching Assistant**, *Mathematics Dep., Faculty of Science, Helwan University, Helwan*.

Seminars & Schools

- 25-27 Oct. 2023 [Spring School "On Symmetries of Differential & Difference Equations and Their Applications"](#), Stellenbosch, South Africa
- 31 Aug. 2023 [Quadratic Forms, Rings and Codes](#), Laboratoire de Mathématiques de Lens, France
- 24-28 Jul. 2023 [Five days faculty development program on 'Data Analysis using Advanced Computational techniques'](#), Department of Statistics and Department of Mathematics, Amity University Kolkata, North India
- 27-28 Jan. 2023 [Categories, Rings and Modules, a conference in honor of Alberto Facchini](#), Online
- 10-21 Dec. 2022 [Rings, Algebras, and Category Towards Coding and Computer Algebras](#), CIMPA school, Helwan University
- 24 Jul. 2019 [Topology and its Applications](#), Helwan University.

Posters

- May. 2024 [Presented a research poster on 'Mathematical Modelling and Game Strategy for Quoridor' at After Research-Party, Heidelberg University](#).
- Mar. 2024 [Presented a research poster on 'Mathematical Modelling and Game Strategy for Quoridor' at Siyakhula event, AIMS South Africa](#).

Awards & Achievements

- Oct. 2023 [Mastercard Foundation Scholar for the academic year 2023-2024 at AIMS, Cape Town, South Africa](#).
- Jun. 2023 [Accepted for a fully fund scholarship to study Master's degree at University of Cape Town - Cape Town, South Africa](#)
- Dec. 2020 Seventh Place in the Ideal Student Competition at Helwan University.
- Dec. 2020 Ideal Student Certificate, Faculty of Science.

Memberships

- May. 2024 [Operation Research Society student member](#).
- Apr. 2024 [European Mathematical Society student member](#).

Skills: \LaTeX , C++, [Python](#), R software, CPLEX Software, Microsoft Office, GeoGebra, plotly, Canva, Emaze.

Languages: Arabic(native), English ([Upper Intermediate](#)), French (Basic).

Volunteer & Social works

- Mar. 2024 As a Mastercard Foundation Scholar, actively participated in community service initiatives, dedicating hours to social work and volunteering efforts. Engaged in educational tutoring at Muizenberg High, South Africa.
- Mar. 2024 [Volunteered at Siyakhula, an event by AIMS, to boost Africa's mathematical sciences. Coordinated international workshops, talks, and showcases, fostering global scientific collaboration](#).

Dec. 2022 [Participated as a volunteer at CIMPA \(Algebra Winter School\), facilitating academic exchanges and supporting the organization of workshops focused on advancing algebraic knowledge and research collaboration among international scholars.](#)

References

Dr Karin-Therese Howell

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Academic Director, African Institute for Mathematical Science, South Africa.

Prof. Susan Eldeken

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