

# Mahmoud Khaled Abdelkader

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 [mahmoud-khaled-abdelkader](#) |  [Mahmoud-khaled-A](#)

Giza, Egypt

## SUMMARY

Dynamic Mathematics graduate with a Bachelor's degree in Mathematics and a Master's degree in Applied Mathematics. Skilled in Optimization and Operational Research, with a focus on strategic algorithms and decision-making processes. Experienced in teaching, mentoring, and academic presentations. Committed to community service and volunteer work.

## EDUCATION

- Concordia University** Sep.2025 - Present  
*PhD Student at Gina Cody School of Engineering and Computer Science* Montreal, Canada
  - Supervised by Dr. Yassine Yaakoubi, focusing on integrating optimisation, machine learning, and simulation to develop intelligent decision-support systems for complex real-world problems.
- Heidelberg University** Apr.2024 - Jun.2024  
*Visiting Scholar* Heidelberg, Germany
  - Supervised by Dr. Michael Winckler, focusing on computational optimization for complex systems.
- University of Cape Town, African Institute for Mathematical Science (AIMS)** Sep. 2023 - Jul. 2024  
*Master's degree in Applied Mathematics* Cape Town, South Africa
  - Thesis: "Mathematical Modelling and Implementation of Game Strategy for the Board Game Quoridor".
  - Relevant Coursework: Nonlinear Optimization, Game Theory, Mathematical Modeling.
- Helwan University** Sep. 2022 -May 2023  
*Pre-Master* Helwan, Egypt
  - Courses: Functional and Numerical Analysis, Abstract Algebra, Ordinary Differential Equations, Partial Differential Equations, and Topology.
- Helwan University** Sep. 2016 - Jul. 2020  
*Bachelor of Science in Mathematics* Helwan, Egypt
  - Gained a solid knowledge in Operational Research, Real Analysis, and Linear Algebra.

## TEACHING AND MENTORING EXPERIENCE

- Canadian International College "CIC"** Sep. 2024 - Jul. 2025  
*Assistant Lecturer (Part-Time)* Cairo, Egypt
  - Courses Taught: Calculus I & II, Linear Algebra, Probability & Statistics.
  - Responsibilities: Prepare and deliver lectures, facilitate tutorials, and design assignments.
- El-Gazeera Higher Institute for Engineering and Technology** Sep. 2024 - Jul. 2025  
*Assistant Lecturer* Cairo, Egypt
  - Courses Taught: Calculus I & II & III, Linear Algebra, Discrete Math, and Numerical Analysis.
- El-Gazeera Higher Institute for Engineering and Technology** Oct. 2022 - Aug.2023  
*Teaching Assistant* Cairo, Egypt
  - Courses Taught: Calculus I & II & III, Linear Algebra, Discrete Math, and Numerical Analysis.
- Helwan University** Sep. 2020 - Apr. 2021  
*Teaching Assistant* Helwan, Egypt
  - Guided student projects on linear and nonlinear programming methods.
  - Mentored undergraduates in applying computational tools (Python, CPLEX) to real-world optimization problems.

## CONFERENCES AND WORKSHOPS

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- **Deep Learning Indaba 2025** 17-22 Aug. 2025  
*University of Rwanda, Rwanda*
  - Presented a research poster titled "Multi-Objective Route Optimization Using Graph Neural Networks".
- **IndabaX Egypt 2025** 1-2 Jul. 2025  
*Academy of Scientific Research and Technology (ASRT), Egypt*
  - Coordinated and Organized IndabaX Egypt 2025.
- **After Research-Party** May 2024  
*Heidelberg University, Germany*
  - Presented a research poster titled "Mathematical Modelling and Game Strategy for Quoridor".
- **Siyakhula Event** Mar 2024  
*AIMS, South Africa*
  - Presented a research poster titled "Mathematical Modelling and Game Strategy for Quoridor".
- **Linear and Nonlinear Optimization Workshop** Mar 2024  
*AIMS, South Africa*
  - Participated in a 3-week workshop focusing on linear and nonlinear optimization.
- **Spring School "On Symmetries of Differential & Difference Equations and Their Applications"** Oct 2023  
*Stellenbosch, South Africa*
  - Participated in the Spring School on symmetries of differential and difference equations.
- **Quadratic Forms, Rings and Codes** Aug 2023  
*Laboratoire de Mathematiques de Lens, France*
  - Participated in an online conference on quadratic forms, rings, and codes.
- **Data Analysis using Advanced Computational Techniques** Jul 2023  
*Amity University Kolkata, North India, Online*
  - Participated in a five-day faculty development program on data analysis.
- **Categories, Rings and Modules** Jan 2023  
*Online*
  - Participated in a conference in honor of Alberto Facchini.
- **Rings, Algebras, and Category Towards Coding and Computer Algebras** Dec 2022  
*CIMPA School, Helwan University*
  - Participated in a winter school on rings, algebras, and category theory.
- **Topology and its Applications** Jul 2019  
*Helwan University*
  - Participated in a conference on topology and its applications.

## AWARDS AND ACHIEVEMENTS

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- **Fully Funded PhD's Scholarship** Sep. 2025 - Jul. 2029  
*Concordia University, Canada*
  - Funding Source: Concordia University
  - Funding Amount: 127,463 USD
- **Travel and Accommodation Grant** 17-22 Aug. 2025  
*Deep Learning Indaba 2025, Rwanda*
  - Funding Source: Deep Learning Indaba (DLI)
  - Funding Amount:
- **Grant to Organize IndabaX Egypt 2025** Feb 2025  
*Deep Learning Indaba and MasterCard Foundation*
  - Funding Amount: 2000 USD
- **Visiting Scholar Funding** Apr. 2024 - May 2024  
*Heidelberg University's HGS MathComp*
  - Funding Amount: 3200 EUR
- **Fully Funded Master's Scholarship** Oct. 2023 - Jul. 2024  
*Cape Town University, South Africa*
  - Funding Source: [Mastercard Foundation](#) and [AIMS](#)
  - Funding Amount: 9000 USD
- **Ideal Student Competition** Dec 2019  
*Helwan University*
  - Seventh Place in the Ideal Student Competition at Helwan University.
- **Ideal Student Certificate** Dec 2019  
*Faculty of Science, Helwan University*
  - Received the Ideal Student Certificate from the Faculty of Science.

## PROFESSIONAL MEMBERSHIPS

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- **Operation Research Society** Student Member *May 2024 - Present*
- **European Mathematical Society** Student Member *Apr 2024 - Apr 2026*

## SKILLS

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- **Programming Languages:** [Python](#), C++, R
- **Mathematical Software:** CPLEX, GeoGebra, plotly
- **Data Analysis:** R software, Microsoft Office
- **Other Tools:** Canva, Emaze

## VOLUNTEER AND SOCIAL WORK

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- **Community Service** *Mar 2024*  
*Mastercard Foundation Scholar*
  - Engaged in educational tutoring at Muizenberg High, South Africa.
- **Siyakhula Event** *Mar 2024*  
*AIMS, South Africa*
  - Volunteered to boost Africa's mathematical sciences.
- **CIMPA (Algebra Winter School)** *Dec 2022*  
*Helwan University*
  - Facilitated academic exchanges and supported workshop organization.

## PERSONAL INFORMATION

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**Date of Birth:** 22 Dec. 1997

**Citizenship:** Egyptian

## REFERENCES

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1. **Prof. Susan Eldeken**  
Mathematics Department, Helwan University  
Email: [Sfdeken@science.helwan.edu.eg](mailto:Sfdeken@science.helwan.edu.eg)
2. **Dr. Karin-Therese Howell**  
Academic Director, African Institute for Mathematical Science  
Email: [howell@aims.ac.za](mailto:howell@aims.ac.za)
3. **Dr. Eman Fathy**  
Department of Mathematics, Faculty of Science, Helwan University  
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