

## EDUCATION

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### University of Cincinnati

Ph.D. in physics

OH, US

2020–Current

- Thesis: “Work in progress”

### University of Minnesota Duluth

M.S. in physics

MN, US

2018–2020

- Thesis: “Search for Slow Magnetic Monopoles with the NOvA Far Detector”

### University of Science and Technology, Zewail City

B.S. in physics.

Cairo, EG

2013–2018

- Thesis: “Strip Hit Resolution of CMS Tracker Analysis”

## RESEARCH EXPERIENCE

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### University of Science and Technology, Zewail City

Undergraduate Research Assistant

Cairo, EG

2017–2018

- CMS Collaboration
- CMS Data analysis and Hardware training
- Worked on upgrading CMS tracker algorithm.

### University of Minnesota, Duluth

Graduate Research Assistant

MN, US

2018–2020

- NOvA Collaboration
- Worked on search for magnetic monopole in NOvA Far detector
- Exotics analyses group member
- Developed and maintained a general analysis package for exotics analyses

## PUBLICATIONS

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- [1] M. Elashri, “Search for Slow Magnetic Monopoles with the NOvA Far Detector”, English, Fermi National Accelerator Lab. (FNAL), Batavia, IL (United States), Tech. Rep. FERMILAB-MASTERS-2020-01, Jan. 2020.
- [2] N. Khaled and M. Elashri, “Magnetically charged black hole”, en, *J. Phys.: Conf. Ser.*, vol. 1253, p. 012008, Jun. 2019, Publisher: IOP Publishing 0 citations (Inspire/DOI) [2021-01-24], ISSN: 1742-6596.
- [3] M. Elashri, “Strip hit resolution of CMS Tracker analysis”, Ph.D. dissertation, Jun. 2017.

## TEACHING

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### University of Cincinnati

Physics Teaching Assistant

OH, US

2018–2020

- Teach introductory physics labs and promote students linking between theoretical development and nature facts
- Helping conduct problem solving sessions and Physics tutoring center

- Grading assignments and tests, documenting results and informing lead teacher of students performance

## University of Minnesota, Duluth

Physics Teaching Assistant

MN, US

2018–2020

- Supported instructors with test administration, curriculum development, and assignment grading
- Encouraging dynamic and pleasant educational environment by promoting both gentle discipline and Physics
- Supported student learning objectives through personalized and small group assistance to support classroom instruction
- Graded assignments and tests using answer key, documented results and informed lead teacher of students' performance

## SKILLS

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- **Programming:** Python, Mathematica, C/C++, R,
- **Machine Learning:** PyTorch, TensorFlow, Keras
- **Particle Physics:** Pythia, Geant4, MadGraph, ART
- **Tools/Techs:** LaTeX, Git, Linux
- **Soft:** Leadership, Time management, Teamwork

## LANGUAGES

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- **English:** Proficient
- **Arabic:** Mother tongue, Native speaker

## PROJECTS

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- **Analysis of Type Ia supernovae data** (Data Analysis, 2019)
  - Revisiting Supernovae 1999 data and reproduce the results
- **NOvA experiment DDTPrescale calculation package** (C++, 2019)
  - Calculate the average prescale per SubRub for the data acquired by nova experiment, used by various exotics analyses.
- **Analysis of Earthquake Time Series Data using Machine Learning** (Machine learning, 2019)
  - Applying different ML algorithms on time series dataset and implementing the new linear neural differential method
- **Arxiv abstracts scraper python library** (Python, 2021)
  - A python module for scraping arxiv abstracts for NLP testing purpose
- **Estimating the Age of universe using galaxies distance and velocity data** (Data Analysis, 2021)
  - Calculating hubble constant and calculate age of universe using sklearn model from galaxies distances and velocities
- **Experimenting Machine Learning Techniques on SUSY dataset** (Machine Learning, 2021)
  - Experimenting with real Monte-Carlo data to get accurate classification using various Machine Learning Algorithms

## TALKS AND PRESENTATIONS

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**Physics Club Meeting, Zewail City** (April –2016)

**Talk:** Parton Model

**University of Science and Technology Seminar, Zewail City** (Mar –2017)

**Talk:** Physics Program at Zewail City, Introduction for Prospective Students

**Physics Club meeting, Zewail City** (Sep –2018)

**Talk:** Magnetic Monopoles, Dirac's Dream

**Physics Seminar, University of Minnesota Duluth** (Feb –2019)

**Talk:** An Introduction to Magnetic Monopole

**Physics Seminar, University of Minnesota Duluth** (Feb –2019)

**Talk:** Search for Magnetic Monopole using NO $\nu$ A Far Detector

**Physics Seminar, University of Minnesota Duluth** (Mar –2019)

**Talk:** Dark Matter Search in NO $\nu$ A Near Detector

**Physics Seminar, University of Minnesota Duluth** (Feb –2019)

**Talk:** An Introduction to Magnetic Monopole

**Physics Seminar, University of Minnesota Duluth** (Jan –2020)

**Talk:** Introduction to Magnetic Monopole

**Physics Seminar, University of Minnesota Duluth** (Feb –2020)

**Talk:** Magnetically Charged Black Holes

## VOLUNTEERING & MENTORING

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- Founder of Physics Club Zewail University 2013–2018  
*Founder and the president of physics club at Zewail City*
- Student mentor at UMD 2019 –2020  
*Member of the program aims to assist incoming international students with their transition to UMD.*