

# Jasmine M. Khalil

Astrophysics Research Student

Space and Astronomy Freelance Writer | [Portfolio](#)

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## EDUCATION

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Qualifying Program in Astronomy and Meteorology - **Cairo University, Giza, Egypt**

Grade: **Very Good**. Percentage: **84.567%** 2021 - 2022

BEng. Electronics and Electrical Communications - **Ain Shams University, Cairo, Egypt**

Grade: **Good** 2014 - 2019

Graduation Project: "*Water Quality Analyzer, A MEMS-based device*". Grade: **Excellent**. [Dissertation](#)

## RESEARCH EXPERIENCE

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**Research Student - University of Amsterdam, Remotely**

- *Under the supervision of Dr. Jan Van Roestel:* Jul 2023 - Present
  - Analysing data from the Zwicky Transient Facility to detect AM CVn binary systems
  - Studying the properties of AM CVn systems discovered and delivering the findings in a letter

**Research Student - Cairo University, Giza, Egypt**

- *Under the supervision of Dr. Al-Shaimaa Hassanin - Prof. Nahed Hassanin Lab for Solar Physics:* Aug 2022 - Present
  - Performing exploratory data analysis (EDA) using Python and the SunPy library.
- *Under the supervision of Prof. Alaa Ali:* July 2022 - Jan 2023
  - Searching for and characterizing wide multiple star systems at the center of planetary nebulae using the latest Gaia data release (DR3)
  - Applying the necessary photometry and astrometry analysis using the VOSA Analyzer

**Undergraduate Researcher - Ain Shams University, Cairo, Egypt** 2018 - 2019

- *Under the supervision of Prof. Dina Khalil and Dr. Yasser M. Sabry:*
  - **MEMS Separation Devices:** Contributed to designing Micro Electrical Mechanical Systems to separate  $1\mu\text{m}$  to  $10\mu\text{m}$  plastic particles using L-edit & Comsol MultiPhysics softwares as part of my graduation project in the Optics Lab.
  - **Plastic detection in Water:** Worked on detecting both plastic sheets and microplastic particles in water using Fourier Transform Infrared (FTIR) spectroscopy as part of my graduation project in the Optics Lab.

## PAPERS/LETTERS PUBLISHED OR UNDER PREPARATION

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- Ali, A., **J. M. Khalil**, Mindil, A.: "*Detection of wide binary and multiple nuclei of planetary nebulae using the Gaia DR3.*"

Published in the **Astrophysics and Space Science Journal**, [arxiv](#)

- **J. M. Khalil**, J. van Roestel, et al.: "*Four new eclipsing accreting ultracompact white dwarf binaries found with the Zwicky Transient Facility*"

Submitted to **Astronomy & Astrophysics Journal** and is under review, [arxiv](#)

- Hassanin, **J. M. Khalil**, et al.: "*A study of the CME link to geomagnetic storms during 1999-2022: Interaction of Homologous eruptions.*"

Under preparation to be submitted to the **Solar Physics Journal**.

## TECHNICAL SKILLS

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- **Fluent Programming Languages:** Python (**Libraries & Environments:** AstroPy, astrobases, SciPy, SunPy, NumPy, Pandas, Matplotlib, Jupyter Notebook, Google Colab), L<sup>A</sup>T<sub>E</sub>X
- **Experience with:** HTML, CSS, MATLAB, TOPCAT, SAOImageDS9, C++, L-Edit, Comsol MultiPhysics, Eagle PCB Designer, Ansys Designer RF
- **Technologies:** Astrophysics, Exploratory Data Analysis, Robotics
- **Operating Systems:** Windows, Linux (Ubuntu), MacOS

## WORKSHOPS & SUMMER SCHOOLS

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### ASPIRE Astrophysics Summer Research Program - University of Amsterdam, NL

A six-week summer research program when I worked on discovering AM CVn stars under the supervision of Dr. Jan Van Roestel. Virtually, 2023

### African Astronomical Society (AfAS) Hackathon

South Africa, 2023

### Sagan Exoplanet Summer Hybrid Workshop on "Exoplanet Science in the Gaia Era"

Hosted by the NASA Exoplanet Science Institute at caltech, Pasadena, CA. [Certificate](#) Virtually, 2022

### Introduction to Astronomy Research, [GitHub](#)

Virtually, 2022

## PRESENTATIONS & POSTERS

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- Searching for AM CVn stars using ZTF data
  - Presentation for the ASPIRE program Online, Aug 2023
  - Poster for The Arab Advanced School for Astrophysics (ArAS) Egypt, Sep 2023

## WORK

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### Freelance Astronomy Writer - Al Sadeem Observatory, Abu Dhabi, UAE

2023 - present

## VOLUNTEERING & OUTREACH

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### Women in Astronomy - IAU

2022 - present

### Stardust magazine (Astronomy Club, Ain Shams University, Cairo, Egypt):

- **Editor-In-Chief:** Led a team of writers & editors to publish the third issue 2019
- **Writer & Editor:** Contributed as a writer & editor to produce the second issue 2018