



# BASSEL FARHAT



## SKILLS

Python

3+ yrs

Linux

2+ yrs

Git

2+ yrs

HPC

2+ yrs

FORTRAN

1+ yrs

## PROFILE

Astrophysicist with strong theoretical background and a passion for coding.

Specialized in running magnetohydrodynamic simulations and in physical interpretation and statistical analysis of data, experienced with coding in multiple languages most notable Python.

## WORK EXPERIENCE

**Research project under the supervision of Prof. Dr. Robi Banerjee**

03/20 - 07/20

**Performing Initial simulations for the thesis**

Gained skills: Running numerical simulations on a remote cluster.

Tasks:

- Ran numerical simulations on HPC cluster
- Studied the changes in different initial conditions on the runs

**Master thesis under the supervision of Prof. Dr. Robi Banerjee**

07/20 - 08/21

**Density Perturbation from Primordial Magnetic Fields**

Gained skills: Performing simulation using the MHD code : Flash.

Outcome: Two papers to be published in 2021

Tasks:

- Ran and maintained numerical simulations on multiple HPC cluster
- Studied in depth the evolution of all the physical parameters across different cosmological regimes
- Studied the evolution, strengths and distribution of density fluctuations
- Plotted the output of the simulations using Python libraries

**Student Assistant**

**Introduction to Astronomy**

04/20 - 08/21

Tasks:

- Handled the correction of different courses for 3 semesters
- Acted as intermediary between the students and the course supervisors
- Monitored the grades using Excel spreadsheets

## CONTACT

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## LANGUAGES

Arabic native

French bilingual

English advanced

German advanced

## EDUCATION

**M. Sc. Physics.**  
**Universität Hamburg**

2021

Main thematic priority of the master studies was Astrophysics with main interest on the theoretical studies of stellar evolution and star formation. Besides stellar studies, I also enjoyed studying experimental courses such as applications of general relativity and astro-particle physics.

The topic of my master thesis was density perturbations in primordial magnetic fields. I performed 3D magnetohydrodynamic simulations to find out the upper limits on density fluctuations and to monitor heating during different cosmological epochs.

**B. Sc. Physics.**  
**Lebanese University, Fanar, Lebanon**

2017

Program covered a vast range of general Physics. Main interests lied in nuclear physics and thermodynamics.

Program covered coding using technologies such as C and Matlab.

## ADDITIONAL SKILLS

### Online Courses

I stay up to date with the fast evolving coding languages by taking online courses. For physics I read online journals such as MNRAS and the Astrophysical journal in addition to the online studies.

### Leadership

Class representative during Bachelors

- Acted as intermediary between the students and the administration
- Provided the necessary resources for the class

## REFERENCES

**Prof. Dr. Robi Banerjee**

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## CERTIFICATES

- Python for Data Science and Machine Learning Bootcamp
- Machine Learning with Python
- Responsive Web Design

