

# Dr. Constantina M. Fotopoulou Rathjen

Ph.D. in Computational Astrophysics

## Details & Contact

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## About me

I am a motivated computational astrophysics researcher transitioning into the dynamic IT industry. I bring over 4 years of invaluable experience in scientific programming, extensive data analysis, model development and implementation, as well as adept statistical analysis of big data. My high-level academic background empowers me to efficiently tackle complex problems and rapidly adapt to new programming tools and software development methodologies. As a highly skilled researcher with a global perspective, my multilingual expertise and deep understanding of diverse cultural perspectives enable seamless connections with colleagues and audiences worldwide. Highly driven and eager for new opportunities, I seek to apply my knowledge and analytical thinking to real-world data challenges. I am excited to embrace a new role in IT, leveraging my passion for data analysis and problem-solving to drive innovation and contribute to cutting-edge advancements in the industry.

## Languages

- 🇬🇷 Greek - Native
- 🇬🇧 English - Full Proficiency (C2)
- 🇫🇷 French - Full Proficiency (C2)
- 🇩🇪 German - Intermediate

## Soft Skills

- Analytical Thinking
- Problem-solving
- Critical Thinking
- Result-oriented
- Independent & Fast Learning
- Project Management
- Initiative
- Adaptability
- Time Management
- Work Ethic
- Team Working
- Multilingual Proficiency
- Communication
- Presentation Skills

## Work Experience

Oct. 2023 - present



### Radio Communication Expert

📍 Bonn, Germany

#### *brown-iposs GmbH*

- ▶ Conducting research on 6G technologies: modeling and integration of Reconfigurable Intelligent Surfaces (RIS) into networks, using ray tracing and machine learning.
- ▶ Development and optimization of geometric models for radio signal propagation and landscape modeling.

Jan. 2023 - Apr. 2023



### Postdoctoral Researcher

📍 Munich, Germany

#### *Max Planck Institute for Astrophysics*

- ▶ Successfully managed research projects working with high-resolution HD simulations of dwarf galaxies, showcasing my expertise in planning and executing complex projects while implementing innovative ideas.
- ▶ Possessing significant experience in academic writing (using  $\LaTeX$ ), I have a proven track record of [publications](#) in peer-reviewed journals, presentations of my work in international conferences, and talks as invited speaker in universities and research institutes worldwide.

## Education

Sep. 2018 - Dec. 2022



### Ph.D. in Astronomy

📍 Munich, Germany

#### *Ludwig Maximilian University of Munich & Max Planck Institute for Astrophysics*

- ▶ IMPRS Fellow: Successful completion of the graduate training program at the exclusive International Max Planck Research School (IMPRS) on Astrophysics for high-potential Ph.D. candidates.
- ▶ High-level proficiency in Python for scientific data post-processing, statistical data analysis and model implementation.
- ▶ Expertly skilled in utilizing specialized libraries (e.g. `numpy`, `scipy`, `astropy`), as well as visualization tools (e.g. `matplotlib`) to extract reliable results and make data-driven decisions.

Oct. 2016 - July 2018



### M.Sc. in Astrophysics, Astronomy and Mechanics

📍 Athens, Greece

#### *National & Kapodistrian University of Athens*

- ▶ Graduated **summa cum laude**
- ▶ Experience: Teaching assistant for Astrophysics Laboratory (4<sup>th</sup> year Undergraduate)

Sep. 2011 - Mar. 2016



### B.Sc. in Physics Specialization in Astrophysics, Astronomy and Mechanics

📍 Athens, Greece

#### *National & Kapodistrian University of Athens*

- ▶ Graduated **summa cum laude** (top 3.5%)
- ▶ Honors: Academic Scholarship for Excellent Performance by the prestigious State Scholarships Foundation of Greece

## </> Programming Skills

- ▶ **Advanced Expertise:** Python (*NumPy*, *SciPy*, *Astropy*, *Matplotlib*, *pandas*, *TensorFlow*, *scikit-learn*, *Seaborn*), MATLAB, Version control with Git
- ▶ **Intermediate Proficiency:** Bash, C, Wolfram Mathematica
- ▶ **Foundational Knowledge:** SQL, HTML

## Strengths

- ▶ Through my scientific education, I have cultivated profound skills in **independent learning** and **assuming responsibility for my academic development**.
- ▶ Thanks to my academic background, I developed valuable **analytical and synthetic cognitive skills**, coupled with strong **critical thinking abilities**. Moreover, I gained a keen aptitude for **quickly learning new tools and methodologies**, highlighting my **adaptability**.
- ▶ My expertise in scientific programming allows me to **efficiently solve complex problems in a timely manner**, **extract valuable insights** and **make data-driven decisions**.
- ▶ Through my PhD, I honed my **time-management skills** and cultivated a **hard work ethic**.
- ▶ Thanks to my participation in multiple international conferences and being invited speaker in universities and research institutes around the world, I have developed exceptional **public speaking** and **presentation skills**.
- ▶ As a researcher trained in international environments, I have developed strong **inter-cultural** and **team-working skills**.
- ▶ My experiences in managing and organizing diverse projects in academia, along with my active involvement in volunteering for education and public outreach programs, highlight my strong **initiative** and **collaborative spirit**.

## Volunteering

### ▶ Planetarium Team

During my PhD at the Max Planck Institute for Astrophysics, I presented planetarium shows, improving my communication skills and ability to engage with diverse audiences. Notably I hosted the planetarium show for the “Girls Day 2019”, where I had the opportunity to realize my motivation for advocating diversity, equity, and inclusion in STEM.

### ▶ Education & Public Outreach

As a student at the National and Kapodistrian University of Athens, I engaged in numerous outreach activities including volunteering during the public observation nights organised by the university and participating in numerous science festivals (e.g. “Athens Science Festival, “European Researchers Night”) and events that aimed to educate the general public.

## Certificates

- ▶ Deep Learning School (*RWTH Aachen University & ERUM Data Hub, 2024*)
- ▶ Wireless Communications (*Yonsei University via Coursera, 2023*)
- ▶ SQL for Data Science (*University of California, Davis via Coursera, 2023*)
- ▶ Python for Data Science and Machine Learning Bootcamp (*Udemy, 2022*)
- ▶ Bash Programming Course (*IMPRS, 2019*)
- ▶ Git Programming Course (*IMPRS, 2019*)
- ▶ Python Programming Course (*IMPRS, 2019*)

## Project & People Management

Sep. 2019 -  
present

### Group Administrator

📍 Munich, Germany

#### *Social Media*

As the administrator of the thriving Facebook group “Jobs for Astronomers” (6.1K members), an initiative to help astrophysicists interested in academic and non-academic job postings, I have developed expertise in using social media for science communication.

May 2019 -  
Dec. 2021

### Principal Coordinator of Career Seminars

📍 Munich, Germany

#### *Max Planck Institute for Astrophysics*

As the principal organiser of the “Career Seminars” organized at the Max Planck Institute for Astrophysics, I have honed my skills in organizing and facilitating events to help early-career scientists navigate the job market in academia and industry.

Feb. 2017 -  
June 2017

### Teaching Assistant

📍 Athens, Greece

#### *National & Kapodistrian University of Athens*

Teaching assistant for Astrophysics Laboratory (4<sup>th</sup> year Undergraduate) at the Physics Department of the National & Kapodistrian University of Athens.

Dec. 2016 -  
June 2017

### Deputy Coordinator of Scientific Essay Contest

📍 Athens, Greece

#### *NASA, ESA &*

#### *National & Kapodistrian University of Athens*

As deputy coordinator for Greece of the “Cassini Scientist for a Day” essay contest, co-organised by NASA, ESA, and the National & Kapodistrian University of Athens, I had the opportunity to collaborate with NASA and ESA representatives in project management and evaluation. This experience cultivated my communication and teamwork, as well as the ability to adapt in diverse contexts. Additionally, presenting the final award ceremony further honed my public speaking skills.

Oct. 2015 -  
Aug. 2018

### Member of Education & Public Outreach Team

📍 Athens, Greece

#### *National & Kapodistrian University of Athens*

As a founding member of the Education and Public Outreach Team “SpaceGates”, I cultivated strong team-working skills while collaborating extensively with peers. Contributing to articles on various astrophysical topics refined my ability to communicate complex ideas clearly. Additionally, I curated the team’s [Facebook page](#), gaining valuable experience in science communication through social media.