David Bruijne

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Education

Sept 2023 – Present
MSc Astronomy & Astrophysics
University of Amsterdam – Amsterdam, the Netherlands
Thesis: Characterization of Gaia Astrometric Exoplanet Candidates

Sept 2022 – Jun 2023
Premasters programme
University of Amsterdam – Amsterdam, the Netherlands

Sept 2017 – Jun 2022
Bachelor applied Education
University of applied sciences – Amsterdam, the Netherlands
Thesis: The Effects of Gender-Diversity on the Perceived Safety in the Classroom

Jan 2020 – Jun 2020
Minor Interdisciplinary education
University of applied sciences – Amsterdam, the Netherlands

Research experience

Sept 2024 – July 2025
MSc Thesis: Characterization of Gaia Astrometric Exoplanet Candidates
Supervisors: Gudmundur Stefánsson
In this thesis, I have analyzed the Gaia astrometric data to identify massive planets around low mass stars, which are known to be intrinsically rare around such stars. A common false-positive scenario involves spectroscopic binaries, which can only be definitively ruled out through follow-up radial velocity (RV) observations. I have led target selection by evaluating measurement errors and observability, directly contributing to observing proposals of multiple major instruments. In addition I worked on fitting spectral energy distributions (SEDs) to analyze the potential multiplicity of these objects. During this thesis I have made key contributions to observation proposals and coauthored three published papers.

April 2024 – May 2024
Astronomical Observations From Design To Proposal
Supervisors: Nathalie Degenaar
This course taught me how to effectively and concisely argue for and request telescope time. This was done through a case study on the HERMES spectrograph at the 1.2-meter Mercator telescope at La Palma. Together with my group we requested a Radial-Velocity follow-up on an exoplanet candidate. The skills learned from this course are vital for my current work with Dr. Stefánsson.

May 2024 – June 2024
Computational Astrophysics Project (Course): N-body-Problem
Supervisors: Phillip Moesta
During this course, I implemented the Barnes-Hut algorithm in 2D to create an N-body-simulator. From scratch I created multiple integrators using both adaptive and non adaptive timesteps. In addition, multiple visualization methods were created. Some features however were added for fun, such as a solar system model and a random comet generator. The final rapport included analysis on computational complexity and energy conservation across different integrators.

Feb 2024 – March 2024
Machine Learning for Physics and Astronomy
Lecturer: Christoph Weniger
During this elective, I submitted multiple reports on using machine learning methods to solve (astronomical) problems. I've built convolutional neural networks to recognize hand-drawn numbers and the radius of the rings produced by gravitationally lensed galaxy's, both in python using the torch library. This course has laid the groundwork for my understanding of machine learning, which has been useful in several occasions during the literature research within my master's thesis.

Sept 2021 – Jun 2022

Bachelor Thesis: The Effects of Gender-Diversity on the Perceived Safety in the Classroom
Supervisor: Charissa Doelwijck
My bachelor thesis investigated whether non-binary students experience more bullying compared to binary students. Surveying students aged 15-18 on social, verbal, and physical bullying. I found that participants generally anticipated higher levels of bullying toward non-binary peers. This experience allowed me to handle sensitive survey topics, manage private information responsibly in a scientific context, and draw insights from limited data sets, despite the response rate restricting a definitive conclusion.

Sept 2019 – Jun 2021

Multiple Applied Education Research Courses:
Supervisor: Wouter Spaan, Charissa Doelwijck
During my bachelor education, I completed several research courses focused on understanding how personal and others' behaviors influence classroom dynamics, individual students and myself. A major aspect of these courses was self-reflection, which has strengthened my ability to critically evaluate my actions in a systematic way. This training also improved my capacity to lead educational discussions on sensitive topics while ensuring social safety.

Teaching experience

Okt 2024 – Jan 2025

Teaching assistant: Astronomy 1
Employer: University of Amsterdam
Level: BSc
Description: Preparing and giving tutorials for 20-30 students with a secondary focus on teaching university-level independence of their learning-process.

Jan 2022 – Jun 2024

Class Tutor
Employer: Het Studielokaal
Level: High School
Description: Tutoring students in all subjects. With a main focus on learning 'how to learn', Usually in groups of 3-8 but upon request also in private. During my time here, I particularly enjoyed working with special need students.

Jan 2022 – Jun 2023

Barman
Employer: 't Kroegie
Description: Barman at a cafe/nightclub. The bar specialized in whisky's and cocktails.

Aug 2020 – Jun 2021

Physics Teacher
Employer: Oscar-Romero College
Level: High School
Description: High School physics (and chemistry) teacher, focused on using recent developments in didactics such as 'gamification' to motivated around 30 students aged 11-17.

Aug 2018 – Jun 2020

Science Teacher
Employer: Atlas-College
Level: High School
Description: High School science teacher, engaging classes of around 20 young teenagers (11-14 years old) with science in an interdisciplinary way.

Technical Skills

Programming Languages
Python (fluent)
LaTeX (intermediate)
HTML (basics)
SQL (basics)
Git(Hub) (basics)

Non-Technical Skills

Languages
English (fluent)
Dutch (fluent)
French (Basics, actively learning)
German (Basics)

Other
First aid / Emergency Response
Drivers License

Published research

10 July 2025 – Coauthor
An Earth-Sized Planet in a 5.4h Orbit Around a Nearby K dwarf
DOI: https://doi.org/10.48550/arXiv.2507.08464
Notes: Still in preprint

10 July 2025 – Coauthor
TOI-1259Ab: A Warm Jupiter Orbiting a K-dwarf White-Dwarf Binary is on a Well-aligned Orbit
DOI: https://doi.org/10.48550/arXiv.2507.07737
Notes: Still in preprint