

Postdoctoral Positions in Scientific Foundation Models for Astronomical Surveys

Application Deadline: February 14th 2025

Principal Investigator: Dr. Francois Lanusse

Location: Astrophysics Department, CEA Paris-Saclay, France

Contract duration: 2 years

The CEA Paris-Saclay astrophysics department is looking to fill **2 full-time Postdoctoral Researcher positions for the development of Scientific Foundation Models for astrophysics**, funded by the **Polymathic AI** initiative, and hosted within the interdisciplinary **Cosmostat Laboratory** at CEA Paris-Saclay. The Polymathic AI team gathers computer scientists, research engineers, and domain scientists, distributed between New York, Cambridge, and Paris, with a shared goal of developing large Foundation Models for scientific applications.

The **successful candidates will work closely with Dr. Francois Lanusse** at CEA Paris-Saclay and within the Polymathic AI team **they will contribute to the development, production, and deployment of astrophysics-focused Foundation Models**. Their overarching goal will be to deliver models that are maximally useful to astronomers and can be readily integrated within scientific workflows. This involves in particular dedicated machine learning research to handle specificities of astronomical data modalities (images, spectra, time-series, etc.) and to develop effective and reliable strategies to adapt these foundation models for downstream scientific use.

The successful candidates **will have access to very significant GPU resources** as well as AI expertise and engineering support, all necessary resources for building large scale models. Within the Polymathic team, they will also have access to an exciting multidisciplinary environment and will be encouraged to interact and collaborate with other members focusing on foundational ML research and on different disciplines ranging from heliophysics to biology and fluid dynamics.

Candidates should hold a PhD in astrophysics, machine learning, computer science, engineering or related technical discipline. They should also have a **track record of open-source software development and machine learning publications**. Candidates with

previous experience in large astronomical surveys (in particular the Vera C. Rubin Legacy Survey of Space and Time (LSST)) are particularly encouraged to apply.

The position includes an internationally competitive salary and a generous travel budget. French language skills are not required.

Documents to submit:

- **CV with publication list** and links to open-source software and code repositories of published work.
- **A short research statement** of no more than 1 page outlining your vision and potential contributions to the project.
- **Names of three academic references** that may be contacted for shortlisted candidates.

The application material should be sent to Dr. Francois Lanusse (francois.lanusse@cnrs.fr) and will be processed on a rolling basis. Early applications are encouraged, and application material should be received no later than February 14th 2025 for full consideration.

Inquiries about the position are most welcome.

About CEA Paris-Saclay and the Cosmostat Laboratory

CEA Paris-Saclay is located 20 km south of Paris, France. The CosmoStat group is a diverse and multi-disciplinary team of researchers working on various topics in astrophysics, cosmology, signal processing, and machine learning. CosmoStat has a long tradition of developing cutting-edge statistical tools for the analysis of astronomical and cosmological data and is heavily involved in several projects including the ESA Euclid space telescope and the Vera C. Rubin observatory.

Our group is committed to diversity and equality and encourages applications from women and underrepresented minorities. We support a flexible and family-friendly work environment. Benefits for this position include retirement, health care, parental leave, vacation and sick days, subsidised meals, discounts for public transport, sports and culture, and French language classes.