Bachelor's / Master's thesis / Internship: Development of Simulation Tools for Agrivoltaic Systems

Stellenanbieter: German Aerospace Center DLR

Development of Simulation Tools for Agrivoltaic Systems

Summary:

We are looking for a Bachelor's or Master's student with a background in natural sciences (physics, biology), engineering (mechanical, industrial, energy, agronomy), or computer science to carry out an internship or prepare a thesis at the Almería site of the **Institute of Solar Research of the German Aerospace Center (DLR) within the Agrivoltaics Team**:

https://www.dlr.de/en/sf/about-us/departments/qualification

Start Date: From September 2025
Duration of Internship: Preferably 6 months
Compensation: According to Erasmus+ programme
Working Hours: Full-time
Location: Almería, Spain

Description:

Start your career with an exciting internship or a Bachelor's/Master's thesis at the **DLR Institute of Solar Research**, one of the world's leading institutions in solar technology!
Are you passionate about renewable energies and the energy transition? Then join our team! We are looking for a motivated student for an internship or thesis integrated into a European project that combines agriculture with photovoltaic energy.

The expansion of renewable energy and the need for agricultural land are increasingly coming into conflict. The idea of combining both—achieving **dual land use**—is called **agrivoltaics**. This can be done, for example, by installing photovoltaic panels over greenhouses or open-field crops (vegetables, legumes, woody crops, small fruit trees).
DLR has experimental facilities in Almería, Spain, to study how reduced incoming solar radiation affects crop production and development. We also explore potential **synergies and impacts** at both the **microclimate level and in energy generation**.

During your internship/thesis, you will support us in model development, data monitoring, and experimental data management. You will also help with quality control of the monitoring system for microclimate, irradiance, and soil conditions below the PV panels. Your tasks will include managing data acquisition from various meteorological sensors, post-processing, and data analysis of one of our demonstration sites.

You will carry out the following tasks:

- **Development of a dual agrivoltaic model**: “Ray-tracing” simulations to evaluate the uniformity of ground-level radiation distribution and implementation of crop models.
- **Implementation** of previously developed functions and their integration into the dual model.
- **Data acquisition** following a predefined protocol
- **Post-processing and analysis** of microclimate data

You will be part of our **international, diverse and multidisciplinary “Agrivoltaics Team”** at DLR in Almería (Spain). An experienced colleague will support you throughout your stay and supervise your work. Your thesis can be aligned with your university supervisor.

Requirements:

- You are seeking an internship or Bachelor's/Master's thesis in **physics, engineering, meteorology, energy technology**, or a similar field, combining research with industry needs.
- You have **basic knowledge of solar energy, meteorology, or agricultural practices**.
- You have **problem-solving skills with a goal-oriented mindset**.
- You are used to working **in a structured way** and are motivated by continuous improvement.
- You have **some programming experience** with Python and basic skills in **data processing and analysis**.
- Ideally, you have some background with ray-tracing tools, such as RADIANCE.
- **English proficiency** is required to study scientific literature and communicate with the team.

Kindly note:

This position is open to students currently enrolled at a university. Due to administrative requirements, non-EU applicants must be enrolled at a Spanish university.

Interested?

Send us your CV and a brief motivation letter!

More info:

Harvesting the Sun, Protecting the Vines – A Milestone for Sustainable Agriculture
ICT-AGRI-FOOD Project Page

Bewerbungsschluss: 31.05.2025

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WWW:
https://www.dlr.de/en/sf/latest/news/2025/harvesting-the-sun-protecting-the-vines-a-milestone-for-sustainable-agriculture

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