



Can a visual scene predict circadian light exposure?

From images of an environment to estimates of biologically relevant light.

Tübingen / Munich / Remote · English · Master's thesis · Research internship · Erasmus+ research placement · Engineering project

The question

A photograph describes how an environment looks, but can it help estimate the light that matters for circadian physiology? The challenge is to connect visual information with a physical exposure measure.

The project

Investigate computational approaches that relate visual scenes to reference light measurements. The work will examine what image information supports prediction, how uncertainty should be represented, and where models may fail when conditions change.

What you will do

- Read across computer vision, radiometry and circadian light measurement.
- Build a documented image-analysis or modelling workflow for an agreed dataset.
- Evaluate predictive error and robustness, and interpret the limitations of image-based estimates.

Possible scope

A thesis or engineering project could develop and evaluate a modelling approach. A shorter placement could focus on data quality or a bounded comparison. Experience with quantitative programming and image processing is useful; specific technical implementation is discussed individually.

Suitable backgrounds

Computer science · Data science · Engineering · AI / NLP · Neuroscience

General expectations

You should be able to analyse data in R or Python, use Git and GitHub, and work reproducibly. Independent reading, careful documentation and increasing responsibility are expected. Previous sleep or circadian research experience is not generally required.

Funding

No salary or stipend from the research group unless explicitly stated. Master's theses are generally unpaid. Mention external funding or mobility programmes when applying.

Suggested backgrounds are not formal programme approval. Confirm requirements with your home institution.

How to apply

Send a short motivation, CV, relevant skills, preferred project, dates, format and location. Mention external funding. Contact Prof. Manuel Spitschan using the address below.

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