At Leiden University, The Faculty of Science, Institute of Environmental Sciences (CML) and the Faculty of Governance and Global Affairs, Leiden University College, are looking for a:

PhD Researcher on sustainability & circularity-based decision support systems (industrial digital twins)

Vacancy number: 15044

PhD position link for applications: https://www.universiteitleiden.nl/vacatures/2024/q3/15044-phd-sustainability--circularity-based-decision-support-systems-industrial-digital-twins

Deadline: 16th of September 2024 at 8:00 am (CEST)

Join an exciting Horizon Europe project called Lasers4MaaS, which will deliver a digital platform to enable manufacturers to make more sustainable and cost-effective products on demand.

Key responsibilities

Future sustainable factories for manufacturing-as-a-service require the connection of information systems to enable the exchange of data from operations to sustainability-based decision support. As a PhD candidate in this project, you will have the opportunity to develop Decision Support Systems (DSS) and harmonize data collection protocols for sustainability and circularity assessment. These will be integrated into a manufacturing digital twin of laser technologies as a service, streamlining decision support for industrial operations.

You will contribute to the sustainability and digital transformation of several manufacturing industries, and you will be working on:

- Establishing data exchange protocols with data providers in the sectors of automotive, nuclear fusion, packaging, aerospace and hydrogen.
- Developing scalable and standardized data exchange protocols enabling the use of Digital Product Passports and Life Cycle Assessment.
- Developing DSS for performance, sustainability, circularity and cost information to be integrated into a digital twin of Lasers4Maas operations.
- Identifying with project partners sustainability and circularity alternatives to be integrated into the DSS.

What you bring

This position is a good fit for you if you recognise yourself in the following:

- You hold a master's degree in one these fields:
    - computer science, information science, industrial ecology, operational research, environmental process engineering, environmental sciences, or another related field.
- You have expertise in one or more of these areas:
    - Data management and programming (e.g., Python).
    - Life Cycle Assessment (LCA).
    - Multiple Criteria Decision Analysis (MCDA).

- In case you do not have all the desired expertise, you demonstrate strong motivation to develop yourself in those areas.
- You have recorded experience in planning and executing research tasks.
- You have excellent social and communication skills and the ability to collaborate with other researchers, industry and policy actors.
- You have excellent English language skills in writing and speaking.

Where you will work

Your position will be embedded in the Department of Industrial Ecology of the Institute of Environmental Sciences (CML) (Faculty of Science) and the Decision Engineering for Sustainability and Resilience (DESIRE) Laboratory of Leiden University College (Faculty of Governance and Global Affairs).

The Institute of Environmental Sciences (CML) at the Faculty of Science

CML is a global leader in the field of sustainability assessment, especially Life Cycle Assessment, Material Flow Analysis and Environmental Input-Output Analysis. It offers a vibrant and supportive community of scientists committed to the challenges of sustainability, with a multidecade record of leading the field of industrial ecology in Life Cycle Assessment, Material Flow Analysis and Environmental Input-Output Analysis. CML distinguishes itself for its attention to professional development in coordination with the interests of its scientists. As such, there are plenty of opportunities to learn new skills, expand your knowledge, collaborate across disciplines, and experiment in a friendly environment fully embodying academic freedom across all career levels.

CML is part of the Faculty of Science, which is a world-class faculty where staff and students work together in a dynamic international environment. It is a faculty where personal and academic development are top priorities. Our people are committed to expand fundamental knowledge by curiosity and to look beyond the borders of their own discipline; their aim is to benefit science, and to make a contribution to addressing the major societal challenges of the future. The research carried out at the Faculty of Science is very diverse, ranging from mathematics, information science, astronomy, physics, chemistry and bio-pharmaceutical sciences to biology and environmental sciences. For more information about the Science Faculty, click here.

The DESIRE laboratory at Leiden University College, Faculty of Governance and Global Affairs

The DESIRE Laboratory is a key player in the development of Decision Support Systems (DSS) with Multiple Criteria Decision Analysis/Aiding (MCDA). It (i) provides state-of-the-art, adaptable and transparent strategies to formulate, model and support better decision-making, (ii) develops and applies decision support tools to tackle sustainability and resilience-related challenges, and (iii) trains future decision engineers to tackle complex decision-making.

The DESIRE Laboratory is part of Leiden University College The Hague (LUC), the international English-language Honours College of Leiden University. Talented and motivated students from all over the world come to The Hague especially to take part in the innovative Liberal Arts and Science programme that focuses on today's global challenges. For more than a decade, LUC can count on a spot in the Keuzegids Universiteiten as the best-rated University College in the Netherlands. The

academic staff, with diverse backgrounds and disciplines, have a passion for teaching and education in which the student is central. LUC is part of the Faculty of Governance and Global Affairs (FGGA), one of the seven faculties of Leiden University. This young, entrepreneurial, innovative organisation has three scientific institutes, two centres, over 3,700 students and 425 staff members. For more information about the FGGA Faculty, click here.

What we offer

Our goal is to work together to create a transparent and inclusive work environment in which everyone feels welcome and appreciated. Our organisation is always evolving, and we need your ideas for improvement and innovation to take us further. We want to devote attention to your personal development.

We also offer:

- An employment contract for the duration of a 1-year position with the possibility of extension to 4 years based on performance. This contract falls under the CLA of Dutch Universities.
- Salary ranges from € 2.770 gross per month in the first year to € 3.539 gross per month in the fourth year based on a full-time position (pay scale P in accordance with the Collective Labour Agreement for Dutch Universities). A holiday allowance (8%), an end-of-year bonus (8,3%), and an attractive pension scheme at ABP.
- Flexible working hours: As a standard, you are entitled to a minimum of 232 leave hours based on a full-time working week of 38 hours. However, you have the flexibility to adjust your working hours. You may choose to work two more or two fewer hours per week, allowing you to accrue or use extra hours accordingly."
- Lots of options when it comes to secondary employment conditions; we can, for example, discuss options for a sabbatical or paid parental leave. Within our terms of employment individual choices model, you can exchange leave days and/or salary for benefits such as an advantageous sports subscription or bicycle scheme, and we also offer child-care options.
- If your work allows it, hybrid working is possible within the Netherlands.
- A home-working allowance (day and internet allowance) and attention for good workplaces. The University will also provide you with a laptop.
- All our PhD students are embedded in the Graduate School of Science. Our graduate school offers several PhD training courses at three levels: professional courses, skills training and personal effectiveness.

What we find important

Promoting an inclusive community is central to Leiden University's values and vision. Leiden University aims to be an inclusive community in which all students and staff members feel valued and respected, and are able to develop to their full potential. Diversity in experiences and perspectives enriches our teaching and strengthens our research. High-quality education and research means inclusive education and research.

Information

Enquiries can be made to Dr. Marco Cinelli (m.cinelli@luc.leidenuniv.nl) or Dr. Franco Donati (f.donati@cml.leidenuniv.nl).

Selection Committee:

- Dr. Marco Cinelli

- Dr. Franco Donati
- Dr. Ana Arias Calvo
- Prof. Dr. ir. Jeroen Guinée

Applications

Please submit your application via the online recruitment system, via the blue button at the top or bottom of this page. **Applications received via e-mail will not be taken into consideration.** Please ensure that you upload the following additional documents quoting the vacancy number:

- Curriculum Vitae.
- Motivation letter (max 2 pages).
- Name and contact details of at least two referees.

Only applications received **before the 16th of September 2024 at 8:00 am** will be considered.

The 1st round of interviews will take place on the 30th of September 2024.
The 2nd round of interviews will take place on the 15th of October 2024.

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