

PhD Position in Innovative Methods for Measuring CO₂ Emissions

100%, University of St. Gallen (HSG)

The Bits to Energy Lab St. Gallen, which is part of the Chair of Operations Management lead by Professor Dr. Elgar Fleisch at the Institute of Technology Management at HSG, offers a PhD position in Applied Computer Science in a unique, interdisciplinary research setting.

Project background

The Bits to Energy Lab is distributed across ETH Zürich, University of Bamberg, University of Erlangen-Nuremberg, and University of St. Gallen (HSG). We leverage the Internet of Things, Machine Learning and Behavioral Economics to create tangible solutions with a measurable impact in the sustainability domain. In an interdisciplinary team, we build and apply tools, and collect and analyze real-world data in collaboration with top international partners from academia and industry.

The sufficiently accurate and practicable measurement of CO₂ emissions is a compelling basis for achieving the global CO₂ targets in the coming decades (“You only can manage what you can measure”). With the advertised position, we are developing the foundations for a new and highly relevant topic with the following vision: Design and development of innovative methods for the automatic, objective, scalable and action-guiding measurement of net CO_{2e} emissions. As a first step, we need to get an overview of the current state of measurement: Which organizations are working with which methods at which level of granularity? What are the advantages and disadvantages of each? What developments can be observed? Second, we need to work out the characteristics of an ideal measurement approach. Which approach (granularity, accuracy, time lag) is “good enough” to provide companies, society and politics with a relevant basis to track emissions? Based on these insights, the design part in search for innovative, pragmatic and robust solutions to close identified gaps begins.

Job description

- Elaborate the state of the art of measuring CO₂ and its current limitations
- Develop alternative methods
- Implement one concrete method
- Evaluate method in a pilot study
- Publish results
- Support an online lecture

What we offer

- A fully funded position in a motivated team dedicated to tackling major real-world problems with scientific rigor
- A creative and inspiring environment to design, implement, and analyze cutting-edge research projects together with leading partner institutions
- Interdisciplinary project collaborations and a top international network
- An excellent starting position for both, an academic career and a career in industry

Your profile

- Enthusiasm for the topic
- Positive mindset, eagerness to learn, creativity in problem-solving
- Master's degree in engineering, information systems or computer science
- Profound expertise in software development and an interest in Machine Learning / Data Science
- Ability to work both independently and as part of an interdisciplinary team
- Very good university track record (GPA of at least 5.0 in Switzerland / 2.0 or better in Germany or Austria or equivalent)
- Profound knowledge of English and German (written and oral)

How to apply

Please send your application (including a cover letter, CV, transcript of records, references) to Prof. Dr. Elgar Fleisch (efleisch@ethz.ch). We are looking forward to receiving your application! For further information about the Bits to Energy Lab, please visit our website <https://www.bitstoenergy.com/>.