



University of Stuttgart

Institut für Energiewirtschaft und Rationelle
Energieanwendung (IER)

Digitization has led to an increase in the use of data centers, with software applications playing a central role in various fields. To ensure the sustainability of data centers, it is essential to understand the energy consumption of software applications and to apply efficient energy models. This student research focuses on comparing application-level energy models in data centers.

Tasks

Fundamental:

- Introduction to the topic of data center energy efficiency
- Definition of the different software layers and application categories

Energy model selection:

- Research and selection of energy models for data-intensive, communications-intensive, and compute-intensive applications.
- Explanation of the reasons for the selection of the models

Comparison of energy models:

- Detailed comparison of the selected energy models in terms of accuracy, reliability, and applicability to the different application categories
- Conduct accuracy validations using real-world measurements and benchmarks

Limitations and recommendations

- Identification of research gaps and challenges in energy modeling at the application level.

Start of work: possible immediately

If you are interested in this work, please contact us with current grade transcript, resume, and date you would like to start.

Kontakt

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**Student research
project/Master thesis**

***„ Comparison of
energy models on
the application level
in data centers“***