

Location:

Deutsches Forschungszentrum für Künstliche Intelligenz
Trippstadter Straße 122 | 67663 Kaiserslautern | Raum Zuse

Tuesday, 10 March 2020

11:15 Welcome

11:25 **Presentations:** *Dominik Huber, Waldmann GmbH:*

Development of a new Luminaire with Natural Light

Sabine Hoffmann, TU Kaiserslautern:

Development of Glare Sensors to control Dynamic Facade Systems

Abolfazl Ganji Kheybari, TU Kaiserslautern; Thomas Kirtschig, ebök:

Simulation based Energy Performance Assessment of EC-glazing and Venetian Blinds

Demos in the Living Lab:

A new Luminaire with Natural Light (Waldmann GmbH)

Electrochromic Glazing to control Solar Radiation (sponsored by SageGlass)

Virtual Reality of Indoor Light Conditions (DFKI Augmented Vision)

Visualization of Monitoring Result (Agentilo GmbH)

Subjective Voting of Indoor Conditions (Agentilo GmbH)

13:00 **Lunch**

14:30 **Presentations:**

Steven Liu, Tim Steiner, TU Kaiserslautern:

Model Predictive Control for Dynamic Facade Systems and Luminaires

Sabine Hoffmann, Abolfazl Ganji Kheybari, TU Kaiserslautern:

Assessment of the Subjective Voting from the Human Subject Tests

15:20 Conclusion

15:30 End of Workshop

Workshop: Light and Solar Management with Innovative Systems and Controls

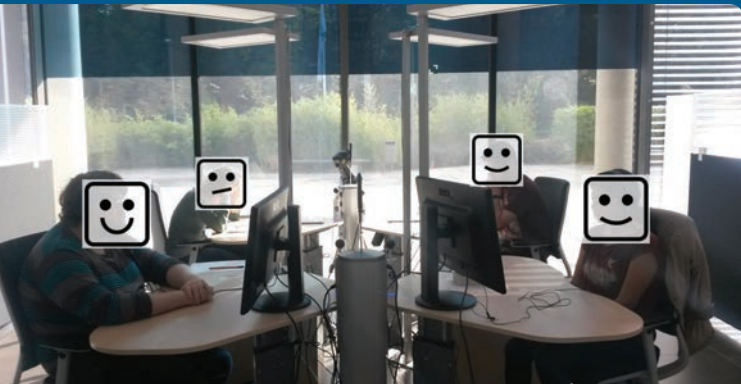
Organized by the Chair of Built Environment, TU Kaiserslautern



The management of solar radiation through highly glazed facades remains a challenging task, particularly in non-residential buildings. Innovative façade systems together with smart controls are indispensable to maintain the balance between comfortable indoor conditions, high light quality and low energy consumption.

In this workshop we present the results of the research project LiSA: Light and Solar Management with active components and model predictive control. In LiSA the energy performance of electrochromic glazing, venetian blinds and a newly developed luminaire was evaluated under different control scenarios. Various control strategies including model prediction and machine learning techniques were developed and tested using building simulation tools (e.g. TRNSYS) before being implemented in a demonstrator.

As demonstrator we used the Living Lab smart office space with its large window areas facing south-east. The temperature distribution and glare occurrence in the space was measured and monitored through newly developed sensors. Human subject tests were conducted to investigate the performance of the systems on a subjective level.



www.livinglab-smartofficespace.com



The workshop will take place on the second day of the TRNSYS experience seminar held in Kaiserslautern from March 9-10. For those who are interested in the workshop only and who are not already registered for the TRNSYS experience seminar, please send an email to: Sabine.Hoffmann@bauing.uni-kl.de

Participation in the workshop is free of charge. We are looking forward to welcoming you at TU Kaiserslautern and the German Research Center for Artificial Intelligence.

Prof. Dr.-Ing. Sabine Hoffmann

Supported by:



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