TUM SENSELAB
Quantifying Spatial Wellbeing

Announcement for Architecture, RNB, or Biomedical Engineering Students*
Master Thesis or Study Project

SUPERVISION
Prof. Dipl.-Ing. Thomas Auer
M. Sc. Bilge Kobas | bilge.kobas@tum.de
M. Sc. Sebastian C. Koth | sebastian.koth@tum.de

Lehrstuhl für Gebäudetechnologie und klimagerechtes Bauen
Arcisstraße 21, 80333 München
arc.ed.tum.de/en/klima/forschung/forschungslabore/senselab

* Students from other disciplines are still encouraged to apply. Please make sure that we can officially supervise your studies.

BIOSIGNAL DATA IN COMFORT STUDIES

CONTEXT

Definition of "comfort" has long been a question for professionals of the built environment. Particularly the numerical definition of it, not only decides how we operate our buildings, therefore manage resources but also how the buildings impact our well-being in return. However, this reciprocal relationship still lacks clarity on certain aspects, as research shows that occupants are consistently dissatisfied with the indoor climate and that most buildings struggle with huge performance gaps between simulations and actual measurements.

As the majority of data acquired in the comfort literature comes from user feedbacks, there are concerns with bias, data resolution, or scalability. Furthermore, it is proven by the research that maybe comfort is not what we should be after, but rather health - and not always these two mean the same thing.

Therefore, research project SenseLab aims to tackle the comfort definition from a newly emerging point of view: Directly looking into the human body. By doing so, we believe that we might not only identify the link between perceived comfort and its physiological markers, but also collect long-term data to observe how the indoor environment impacts our health and well-being.

TASKS

As part of the ongoing SenseLab research, we are producing physiological data in correspondance to climate data in our controlled experiments. However, we also realise that there is a number of research, especially from the last 5 years that have carried our experiments and data-collection using similar metholodogies, ie. measuring skin temperature, core temperature, heart rate, or EEG activity using non-invasive methods and evaulate them together with their corresponding temperature/PMV values.

The task of this call is to run an extensive literature review, identify the studies that fit in the description, gather their data (raw and/or processed) and feed them into a larger database.

It is possible to work on this call entirely remotely.