Hiwi Positions (Two Positions, 10 h/week)

1. Data evaluation of optical measurements in hydrogen reacting flows
2. Advancing image processing algorithm driven by machine learning

TECHNISCHE
UNIVERSITÄT
DARMSTADT

RSM
REAKTIVE STRÖMUNGEN + MESSTECHNIK

Motivation & Background

RSM focuses on fundamental combustion research and has established world-class combustion laboratories with novel optical diagnostics methods. Advanced imaging methods combing modern lasers and cameras enable an understanding of complex gas and solid combustion processes. Reducing the carbon footprint in the energy sector has become a key challenge to mitigate climate change. Hydrogen (H2) will be widely used as a renewable clean fuel in the future energy mix. However, the combustion characteristics of H2 still require extensive investigation and understandings, especially by extending conventional data evaluation methods to explore in-depth information behind the data. This requires fundamental research in developing advanced computational algorithms and deep-learning driven approaches to explore the large amount of experimental data.

Working hours can be discussed. The employment of at least 40 hours/month is expected. The payment is according to the TU rates for student assistants. The work as a student assistant can often be extended to interesting Bachelor/Master theses or ADPs. We are especially welcome students who are interested in working with us for a long term.

Tasks

1. Data evaluation procedure for optical measurements in hydrogen reacting flows.
   Requirement: Experience with the image processing toolbox using MATLAB and Python
2. Advancing image processing algorithm enabled by machine learning
   Requirement: Experience in implementing machine learning architectures (CNNs)

Focus areas

Experiment	● ○ ○
Construction	○ ○ ○
Modeling	● ● ●
Data analysis	● ● ●

Date

22.03.2024

Start from

Flexible, get in touch!

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Your Benefits
1. Participation in different research topics on H2 energy (academic and industrial level)
2. Working in the word-leading laboratory for laser combustion diagnostics
3. Publication on high-impact scientific journals and attending international conference (by major contribution)