Student Assistant
Detection of Bubbles Using Machine Learning

To support the research activities within the framework of several publicly funded projects on the subject of the detection of bubbles using state-of-the-art methods like machine learning, the working group is looking for a student assistant. The activities are variable and varied. Flexible working hours allow employment as a student assistant alongside your studies. The working hours are between 6-10 hours per week.

Bubble detection using Machine Learning methods

Detailed knowledge about gas-liquid multiphase flows is important to optimize industrial systems. Imaging with image processing is the most commonly used measurement technique. However, the workflow and parameters strongly depend on the experimental conditions and very few applicable processes have been developed. Here, a workflow based on convolutional neural networks (CNN) is proposed that can be used with a wider range of experimental conditions. The method, named YOLO (You Only Look Once), employs a CNN detector to locate bubbles and segment them. Hyperparameters and network architectures for modules are being systematically analyzed. A pretrained program was made publicly available on GitHub for YOLOv5 by Ultralytics.

Your Profile

- min. 3rd semester in a technical course (preferably master's in Computer Science)
- Strong technical understanding, good comprehension, and handy with MS-Office
- In-hand experience with Python coding, open-source libraries like TensorFlow, PyTorch, and Keras
- Good knowledge of the English language

Your Tasks

- Familiarization with ANN architectures like CNN and YOLOv5
- Assistance in data preprocessing like labeling images for instance segmentation

There is also the option of completing a thesis or student research project in the same subject area. We are looking forward to your application!

For further Inquiries:

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