Earliest start: now

Master's Thesis

Title: Zebrafish Tracking with a Semi-Automated Labeling Pipeline Using Segment Anything

Zebrafish are an important model organism for different research areas, such as vertebrate development, toxicology and cancer research.

The aim of the Master's Thesis is to develop an automatic system that can track the individual zebrafish and use the tracking data to accurately count the number of zebrafish.

The work on the thesis will include the development of a semi-automatic labeling pipeline using Segment Anything and a system for tracking the individual zebrafish.

The work will be done in close collaboration with the Institute of Biological and Chemical Systems – Biological Information Processing (IBCS-BIP).

Tasks:

- Literature search for (semi-)automatic labeling, as well as detection and tracking for (zebra)fish
- Develop
  - ➤ a semi-automatic labeling pipeline using Segment Anything (2)
  - ➤ a system for the tracking of individual zebrafish
- Evaluate the system

Education, Experience, and Skills:

Studies in Computer Science, Engineering or related field
Basic knowledge in Deep Learning and Image Processing
Experience in programming with Python
Experience with Deep Learning Framework (PyTorch, TensorFlow)

The thesis can also be done in German.

If you're interested, please send an e-mail with your resume and transcript of records to thomas.lautenschlager@kit.edu.

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