Master Thesis/Bachelor Thesis/Semester Project:
Improving Computer Vision Models for At-Home Physiotherapy

Background

Kymu is a gamified telerehabilitation platform that enables children with conditions to perform physical therapy at home, making it more engaging, effective, and accessible for everyone involved. Kymu is now taking it's next step towards becoming a digital health service.

The Project is driven by Stepan Vedunov and Elia Salerno, two interaction designers. We collaborate directly with the Digital Health Design Living Lab (DHD LL) at ZHdK, combining expertise in health design, serious games, and emerging technology solutions. For the year 2026, we joined the Funding Program DIZH and are part of the ZHdK incubator.

Your Tasks

- Evaluate and benchmark **markerless pose estimation models** in realistic home-therapy environments.

- Optimise the full vision pipeline for extracting **3D skeletal data**

- Focus on enhancing robustness against **lighting variation, occlusions, and clutter**.

- Develop real-time machine learning models to **semantically interpret** patient movements and classify therapy exercises.

- Prototype **real-time integration** of pose estimation into the Kymu telerehabilitation platform.

Your Benefits

- **Interdisciplinary Application:** Apply your research methods across design, technology, and clinical need within a functioning team environment and test your hypothesis with actual people.

- **Real-World Experience:** Gain practical experience in digital health development and clinical feasibility testing.

- **Advance a currently worked on Product:** Contribute to Kymu, a validated pediatric telerehabilitation concept, as we pursue crucial clinical pilots and are a funded project.

Your Profile

- ETH Student in Computer Science, Engineering, or a related field.

- Solid experience with Python and common CV frameworks.

- Interest in pediatric health, rehabilitation technology, or human movement science.

Contact

Host: Dr. Peter Wolf (SMS-Lab, ETHZ)

Please send your CV and latest transcript to:

David Rode
david.rode@hest.ethz.ch

Stepan Vedunov
stepan.vedunov@zhdk.ch

Elia Salerno
elia.salerno@zhdk.ch

Learn more about Kymu
https://kymu.dens.studio/