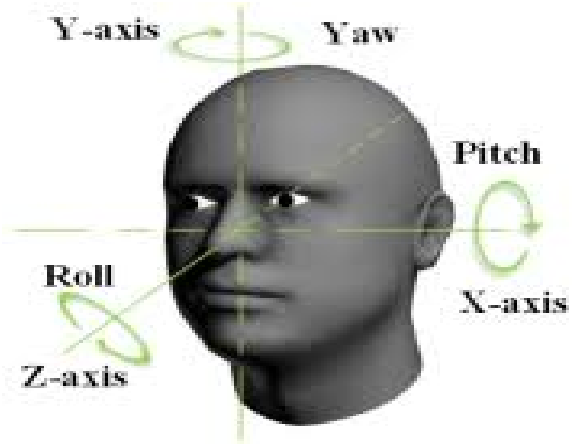
IWF
Institut für Werkzeugmaschinen und Fertigung
Institute of Machine Tools and Manufacturing

Head-Pose Estimation System

Keywords: Image analysis, Head-Pose, Identification, Deep Learning

Overview

In companies, blind and visually impaired people (VIP) taking part in group meetings is not uncommon. However, a significant part of communication is done via nonverbal communication (NVC) such as deictic gestures (e.g. "this over there") or general body language (e.g. facing direction, shrugging) which is completely inaccessible to BVIPs. In order to make these NVCs accessible to BVIPs and thus grant BVIPs a broader access to group meetings, multiple systems will be tested in various studies.
In this work, you will develop an automatic head-pose estimator using deep learning.



Tasks

Your task is to research on the head-pose estimation and already existing techniques and their applications. You will try and build several different architectures to find a best fit.
You will develop a software solution which will be GUI based system to automatically find the head-pose in real time.
You will test the system/model with multiple datasets
You will present your work in an intermediate and a final presentation to the ICVR lab. Finally, you summarize your results in a written report.

Workpackages

- Literature research on the state-of-the-art of head-pose estimation
- Software development for head-pose estimation
- Test you system with at-least 3 open-source datasets
- System test in real meetings
- Intermediate and final presentation
- Written report

Skills

- Programming skills, preferably in python
- Machine learning basics
- Strong communication and interpersonal skills
- Motivation

Results

The results of this thesis need to be summarized in a written report and will be presented to the ICVR in a 20min talk.

Contact

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