Autonomous Action Modelling

Seminar on AI, summer 2017

Project structure

- Data enriching (Jiří Hörner)
- Data pre-processing (Jan Pacovský)
- Supervised learning of actions (Monika Švaralová)
- Anomaly detection (Šimon Rozsíval)
- Controller learning (Martin Adam, Yigit Mertol Kayabasi)

Data enriching (Jiří Hörner)

Task:

Enriching sensor data by information from video (optical flow)

Input:

- Time annotated sensor data table
- Video

Output

- Enriched time annotated sensor data table

Data pre-processing (Jan Pacovský)

Task:

Preparing data for supervised learning (data filtering, sensor fusion, connection sensor and control data, manual action annotation)

Input:

- Enriched time annotated sensor data table + video
- Time annotated control data table

Output

- Time annotated sensor+control+action data table

Supervised learning (Monika Švaralová)

Task:

Learning the function from sensor data to control/action data

Input:

- Time annotated sensor+control+action table

Output

- Function sensor -> control/action

Anomaly detection (Šimon Rozsíval)

Task

Detection of inconsistencies in data

Input

- Time annotated sensor+control+action table

Output

- Identification of anomalies

Controller learning (Martin Adam, Yigit Mertol Kayabasi)

Task:

    For a given action the function from sensor data to control data

Input:

- Time annotated sensor+control+action table

Output

- Function sensor,action -> control

Preliminary time schedule

Date	Topic
28.3.	Literature review, interface definition, data availability
4.4.	
11.4.	Presentations of solving concepts
18.4.	
25.4.	Presentations of first results
2.5.	
9.5.	
16.5	Final reporting