

Diploma thesis proposal: A Log Analysis Program for Robotics Experiments

Pierre Willenbrock <pierre@tzi.de>

June 9, 2009

Supervisors:

Prof.Dr. Frank Kirchner <frank.kirchner@dfki.de>

M.Sc. Jakob Schwendner <jakob.schwendner@dfki.de>

This diploma thesis aims at developing a program to synchronize and display the different log data that is created in robotics experiments.

Log data are for example video data using differing framerates, orientation/position data, internal state variables and raw measurements.

Synchronisation of the data sources will be possible by using synchronisation information embedded into the data sources, synchronisation information extracted from the data by synchronisation helpers or manually.

There will be at least a synchronisation helper to extract synchronisation information from a blinking light in video frames which is then correlated to the light on/off events from another data source, thus synchronizing video frames to all of the data from the other source.

Data can be viewed in realtime, that means as soon as data arrives at the program(plus a short delay for processing), from log files at full speed (with rough synchronisation), or stepwise from log files(with exact synchronisation). In the latter case the step time will be freely adjustable, and the exact time viewed can be chosen.

There will be the possibility to exchange data samples between this program and an existing scripting language to be chosen. This will allow creation of virtual data samples from other data samples or from scratch by applying functions. These functions will not be limited to the data from the same time, but will be able to access past and future data points relative to the original time.

To give this program the flexibility to be easily reusable in other projects, it will import the different data formats, display the different data types and extract synchronisation data from the different data type using plugins. There will be display plugins at least for single value data, for orientation and position data and for video data.

Tasks

- Research and choose scripting language
- Design architecture
- Research video formats
- Develop base application
- Develop import plugin for comma separated value log files
- Develop display plugin for single values
- Develop display plugin for orientation and position
- Develop import plugin for video
- Develop display plugin for video
- Develop import plugin(s) for other data