

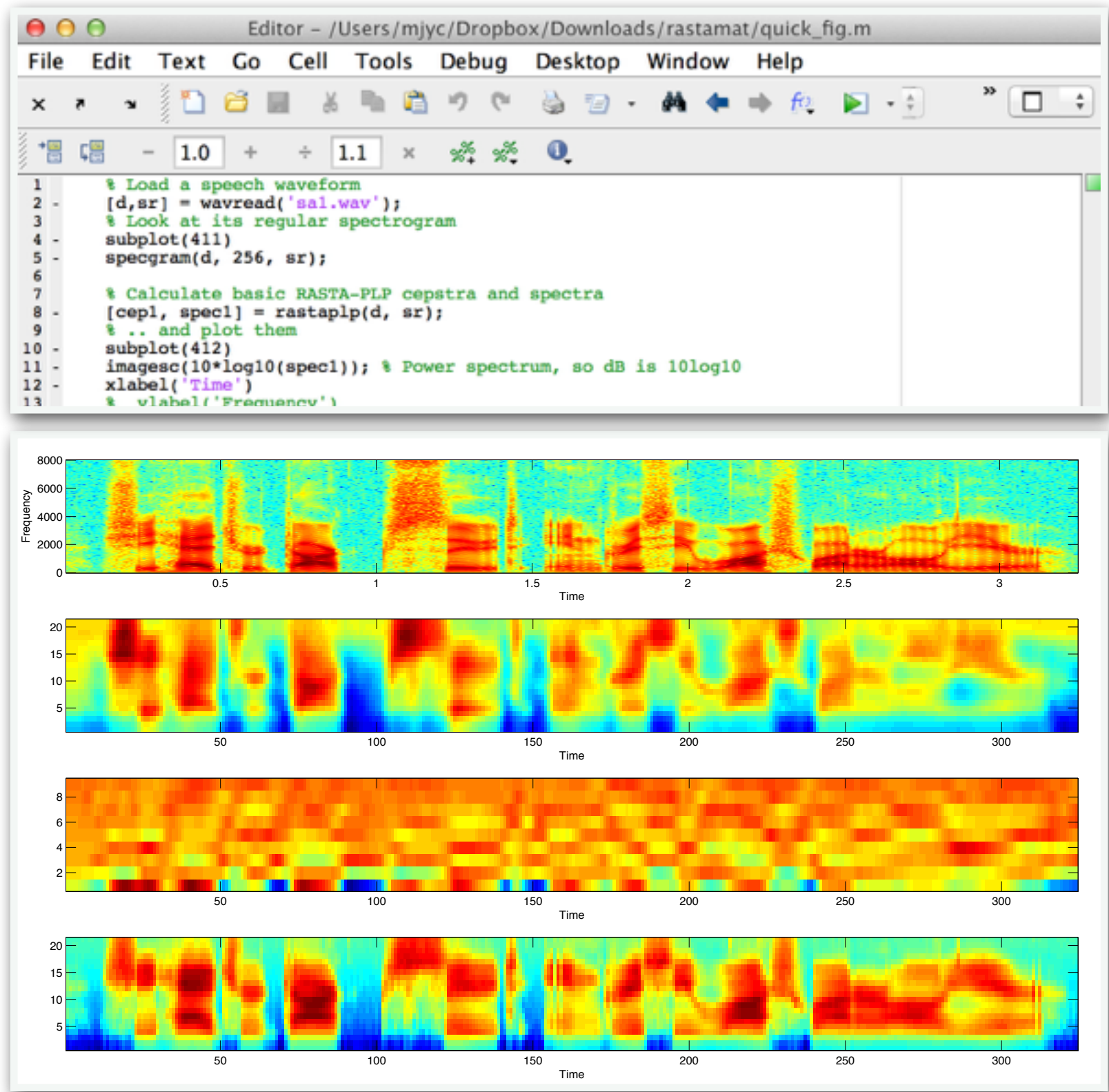
rqt_bag_diff: Tool for Visual Comparisons of Robot Sensor Data

Motivation

Comparing sensor data around two different time points is useful for various tasks, such as building event detectors, e.g., a *door open* event detector. However, effective sensor data comparison is difficult using currently available tools.

Common Approach 1: Use Data Analysis Softwares

Dump data into a file, perform analysis in Matlab, R, python, etc...

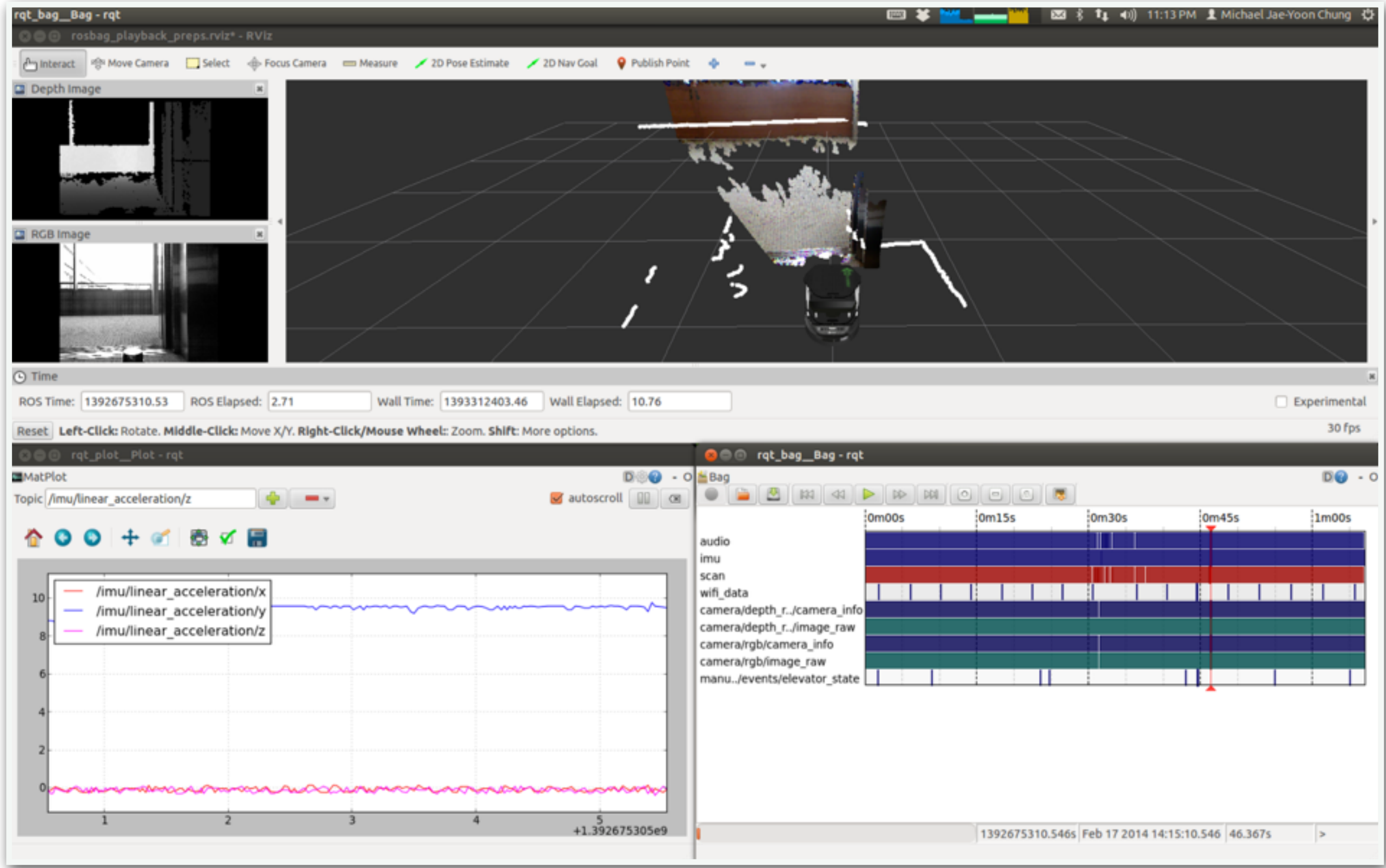


Problems?

- Data (often > 10gb) don't fit in memory.
- Scripts are error prone and often not general purpose

Common approach 2: rviz and rqt_bag

ROS is a set of software libraries and tools that help roboticists build robot application. **Rviz** is a generic robotic data visualization tool and **rqt_bag** is a generic robot data management tool.

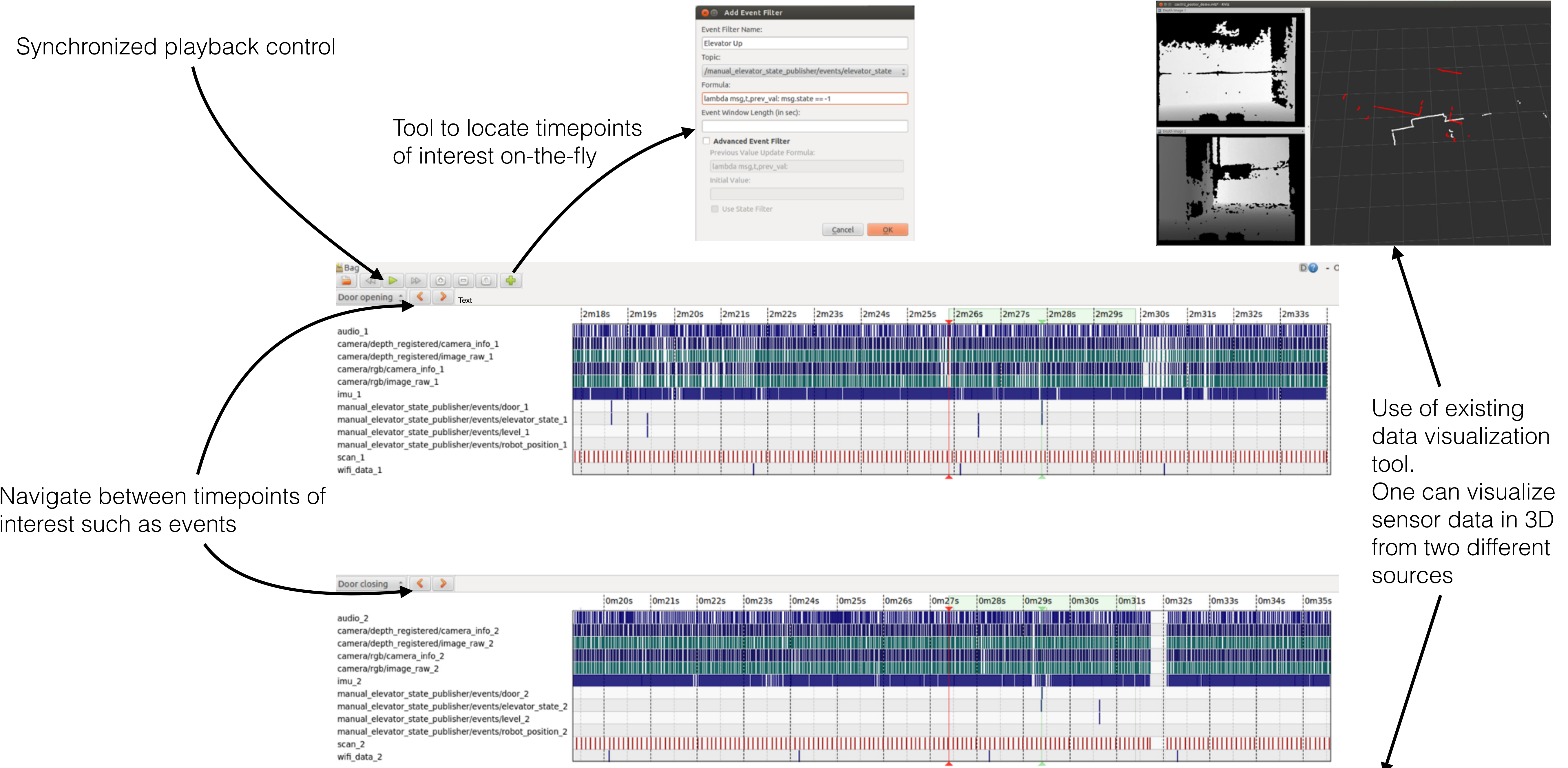


Let's see how one might use this system to build an event detector...

- Step1. Find a timepoint of interest and replay the sensor data around it
- Step2. Memorize replayed sensor data in *your head*
- Step3. Repeat the same procedure for other timepoints of interests
- Step4. Come up with an idea for building an event detector, e.g., classifier.

Our Approach

Stay in ROS to take advantage of available visualization tools **and** provide additional data manipulation and comparison functionalities.



Conclusion

- Comparing two timepoints of interest in robotic sensor data is difficult because
 - manipulating with often big data (>10gb) is not trivial using currently available tools
 - other tools that support large data do not support comparison of two timepoints of interest
- We provided solution that addresses these two challenges by building on top of an existing framework

