

CTU plans for perception

Tomáš Svoboda, svobodat@fel.cvut.cz

center for machine perception, department of cybernetics
faculty of electrical engineering, czech technical university

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railway ...

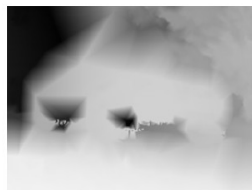
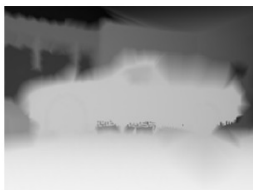


data sources LB3 and more

- ▶ 6 LB3 images
- ▶ 3D laser data
- ▶ thermal imaging
- ▶ IMU
- ▶ ...



combining visual and depth data



W

S

NE



3D laser data

The screenshot displays a ROS visualization window with a dark theme. The main view shows a 3D point cloud of a building facade, rendered with a color gradient from blue at the top to yellow at the bottom. A small robot model is visible in the foreground. On the left, a 'Displays' panel lists various visualization options, with '03. 2D Laser Scan (Laser Scan)' selected. Below this panel, a detailed view of the laser scan data is shown, including a 'Time' section with fields for Wall Time, Wall Elapsed, ROS Time, and ROS Elapsed, along with a 'Reset' button.

File View Plugins Help

Move Camera Select 2D Nav Goal 2D Pose Estimate

Displays

- .Global Options
- .Global Status: OK
- 01. Metric Grid
- 02. TF (TF)
- 03. 2D Laser S
- 04. 2D Map (Map)
- 05. Topologica
- 06. Rolling Sca
- 07. 3D Point C
- 08. Local Costm
- 09. Local Path (P
- 10. Global Costm
- 11. Global Path (
- 12. Robot Mod

03. 2D Laser Scan (Laser Scan)

Displays the data from a sensor_msgs::LaserScan message as points in the world.

Time

Wall Time: 1338977539.472801 Wall Elapsed: 5368.309077 ROS Time: 1338977539.472796 ROS Elapsed: 5368.309077 Reset

Add Remove Manage...

thermal imaging

/stacks/nifti_vision/thermo_cam



thermal imaging



thermal imaging



thermal imaging



thermal imaging



IMU + odometry

2012-05-31-15:30:18

[View in Experimental](#)

[Get link](#)

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File View Edit Visualize Merge Experiment

Showing all rows [options](#)

Location

Display as heat map

[Configure info window](#)

[Configure styles](#)

[Download KML](#)

[Download KML link](#)

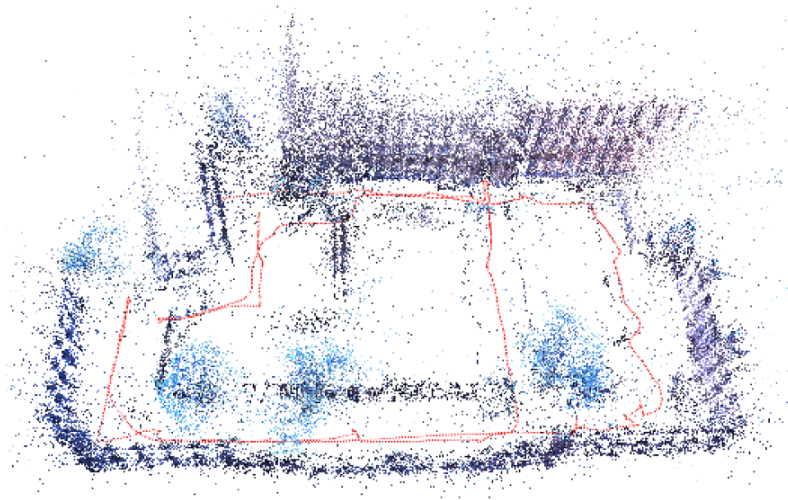
[Get embeddable link](#)



toward visual odometry

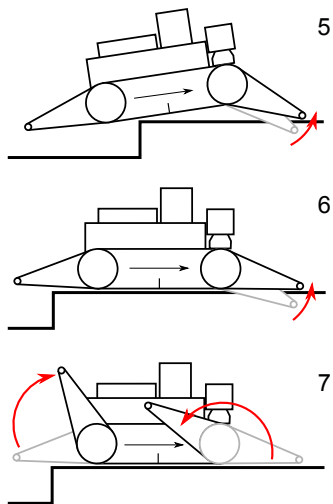
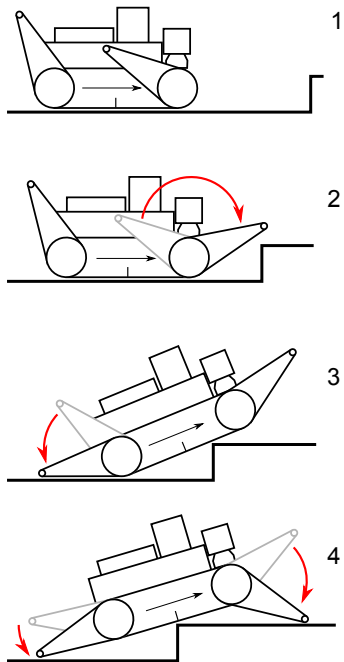


toward visual odometry - offline

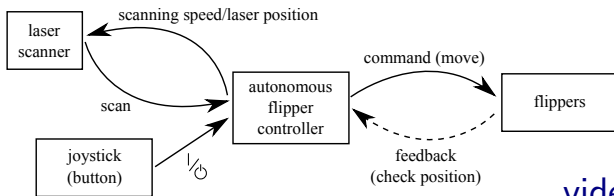
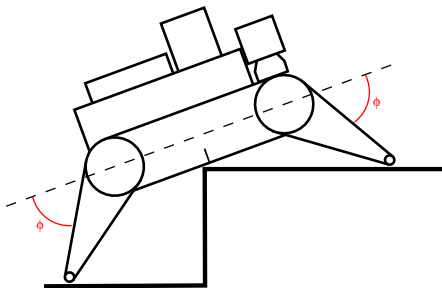
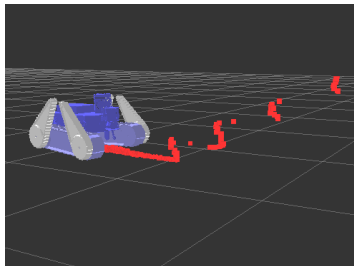


automatic flippers





measuring terrain profile



videos



some visuals from the railway yard

some bag-files and visual uploaded to nifti webdav¹

- ▶ pano
- ▶ rviz snaps - 3D laser data
- ▶ rviz snaps - 3D laser data going along rails

¹[http:](http://dav.nifti.eu/share/media/CTU/20120606_prague_rail/)

[//dav.nifti.eu/share/media/CTU/20120606_prague_rail/](http://dav.nifti.eu/share/media/CTU/20120606_prague_rail/),

http://dav.nifti.eu/share/media/CTU/20120423_prague_rail/

plan summary

- ▶ detecting and localizing wagons (visual+3D)
 - ▶ victim/human detection (visual+thermo)
 - ▶ warning signs on wagons
 - ▶ visual odometry/compass, and possibly homing
-
- ▶ rails detection? from aerial views?
 - ▶ terrain classification?
 - ▶ human in the loop?



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