

ROS/Gazebo Computer Vision (CV) Survey Results

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Contents

Summary/Overview

ROS CV Usage

Technologies and Hardware

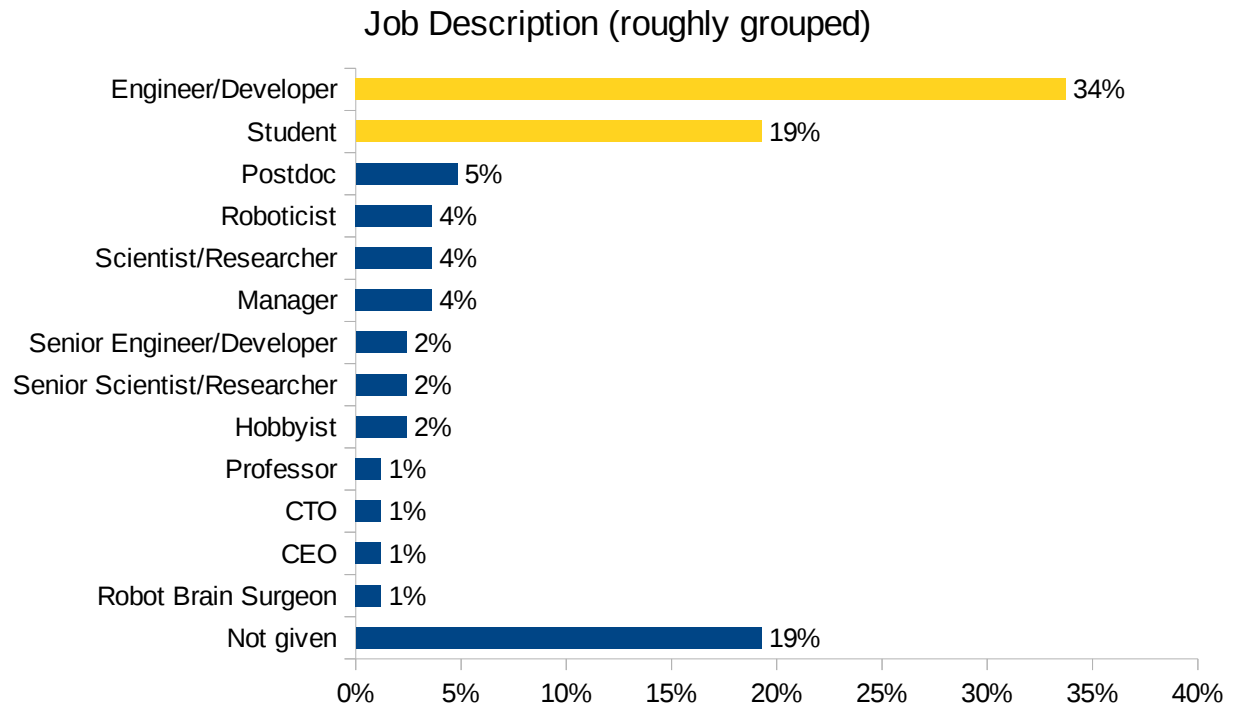
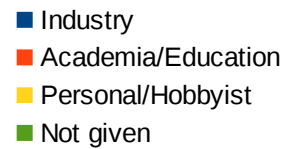
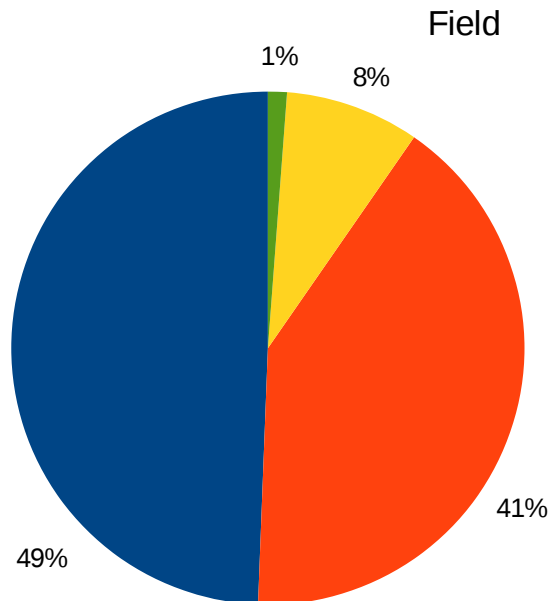
Gazebo/ROS CV Usage

Improvements

Summary

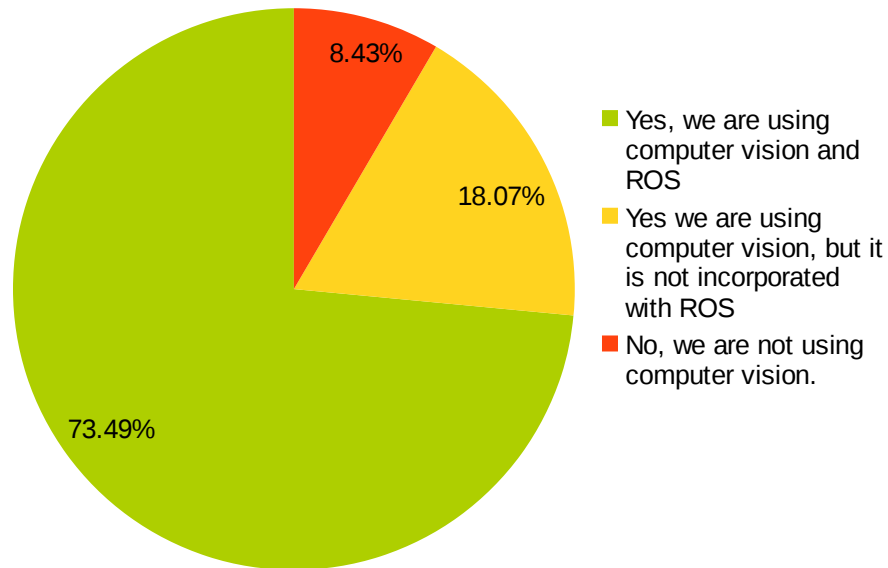
- 83 Respondents, approximately half from industry
- OpenCV and Point Cloud Library are the primary tools used by respondents
- Navigation/SLAM and 3D object detection are the primary use cases encountered
- The most-requested improvement to ROS computer vision is better compatibility with OpenCV, TensorFlow, and other existing computer vision libraries
- Computer vision support is also desired in Gazebo, but it is difficult to make realistic scenes

Respondent Pool: 83

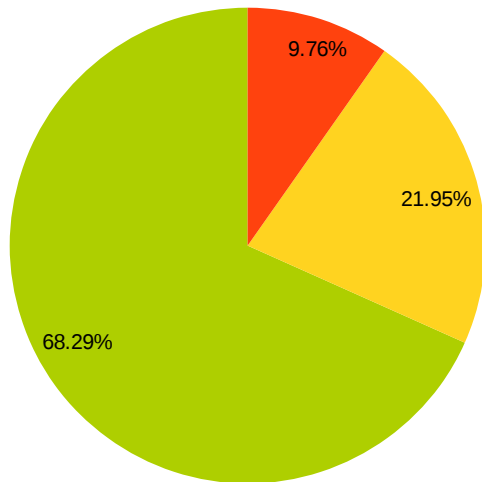


ROS CV Usage

Computer Vision Usage - All Respondents*

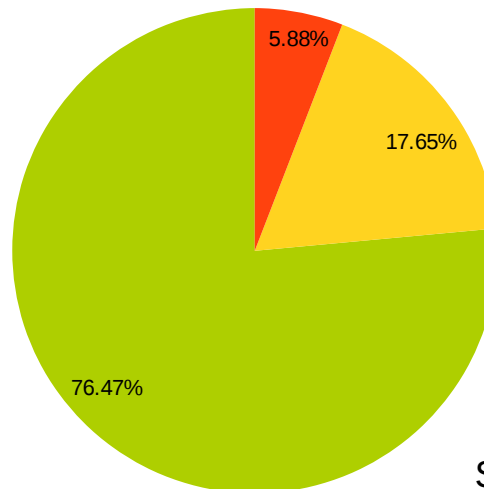


Computer Vision Usage - Industry



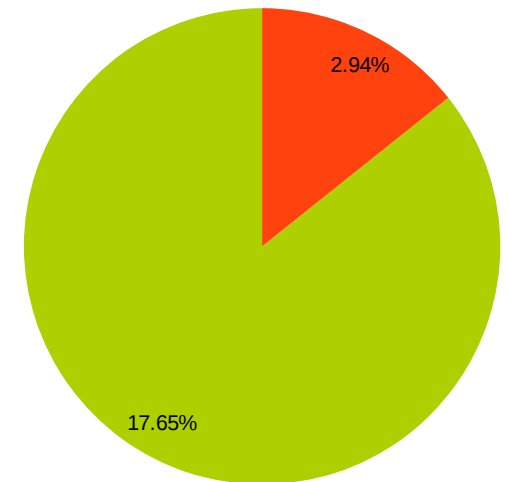
Sample Size: 41

Computer Vision Usage - Academia



Sample Size: 34

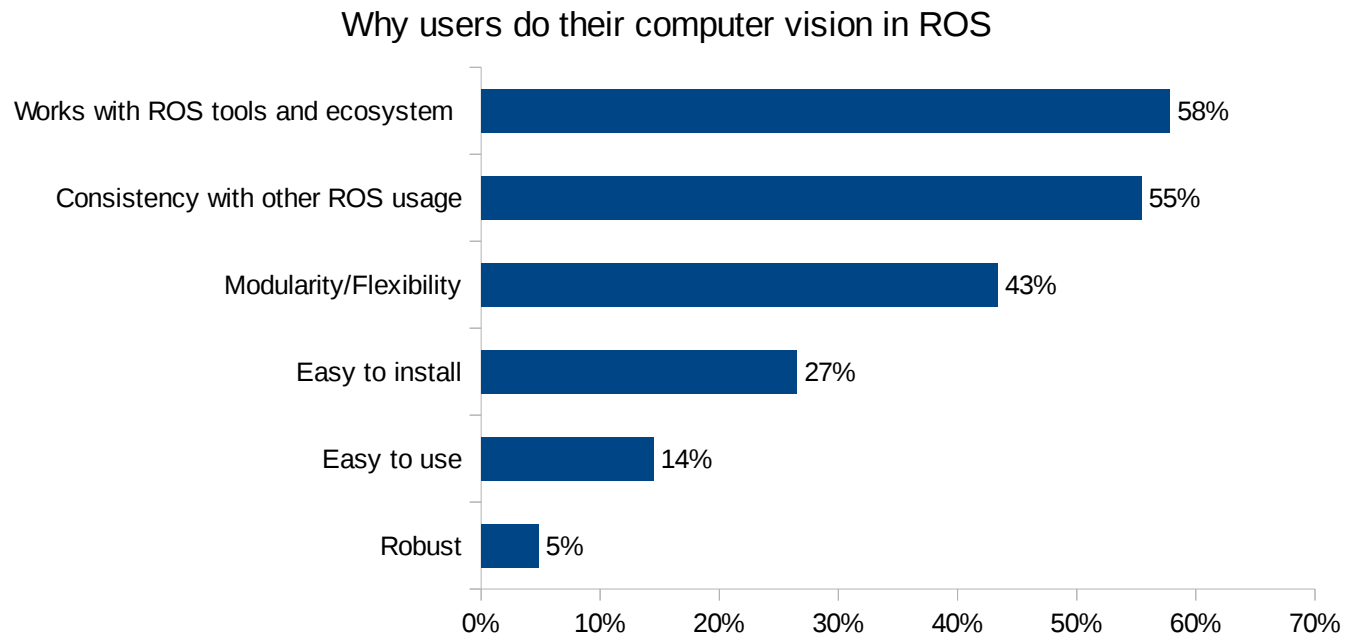
Computer Vision Usage - Hobbyist



Sample Size: 7

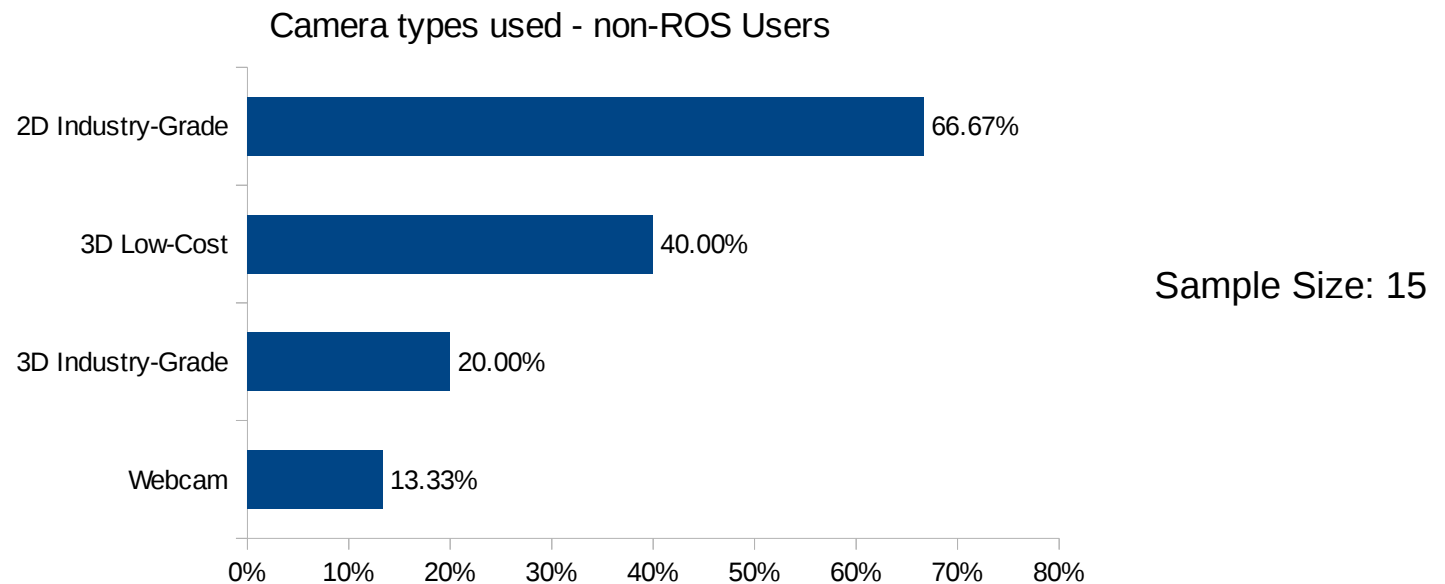
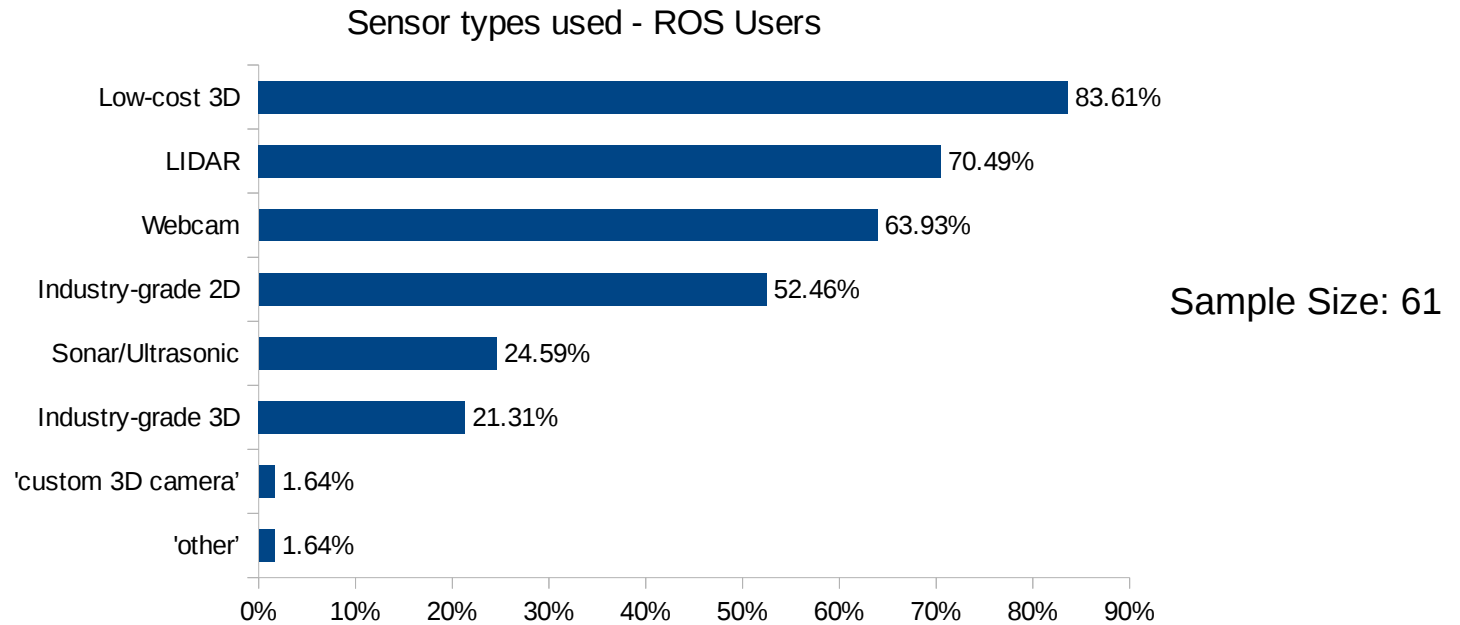
* This is not an random sampling of all ROS users, only those who chose to take the survey.

Reasons for Using ROS CV



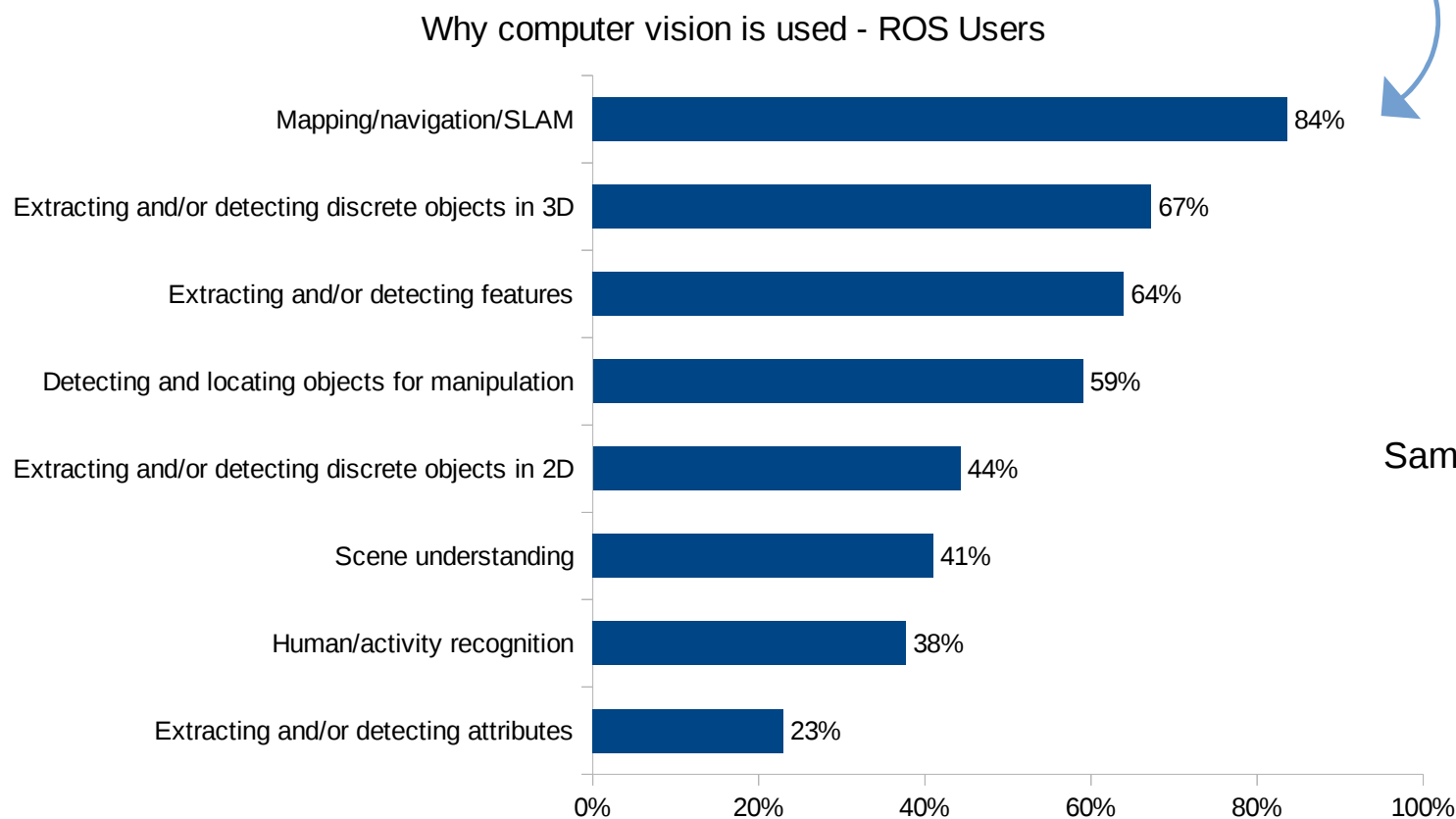
Sample Size: 61

Technologies and Hardware

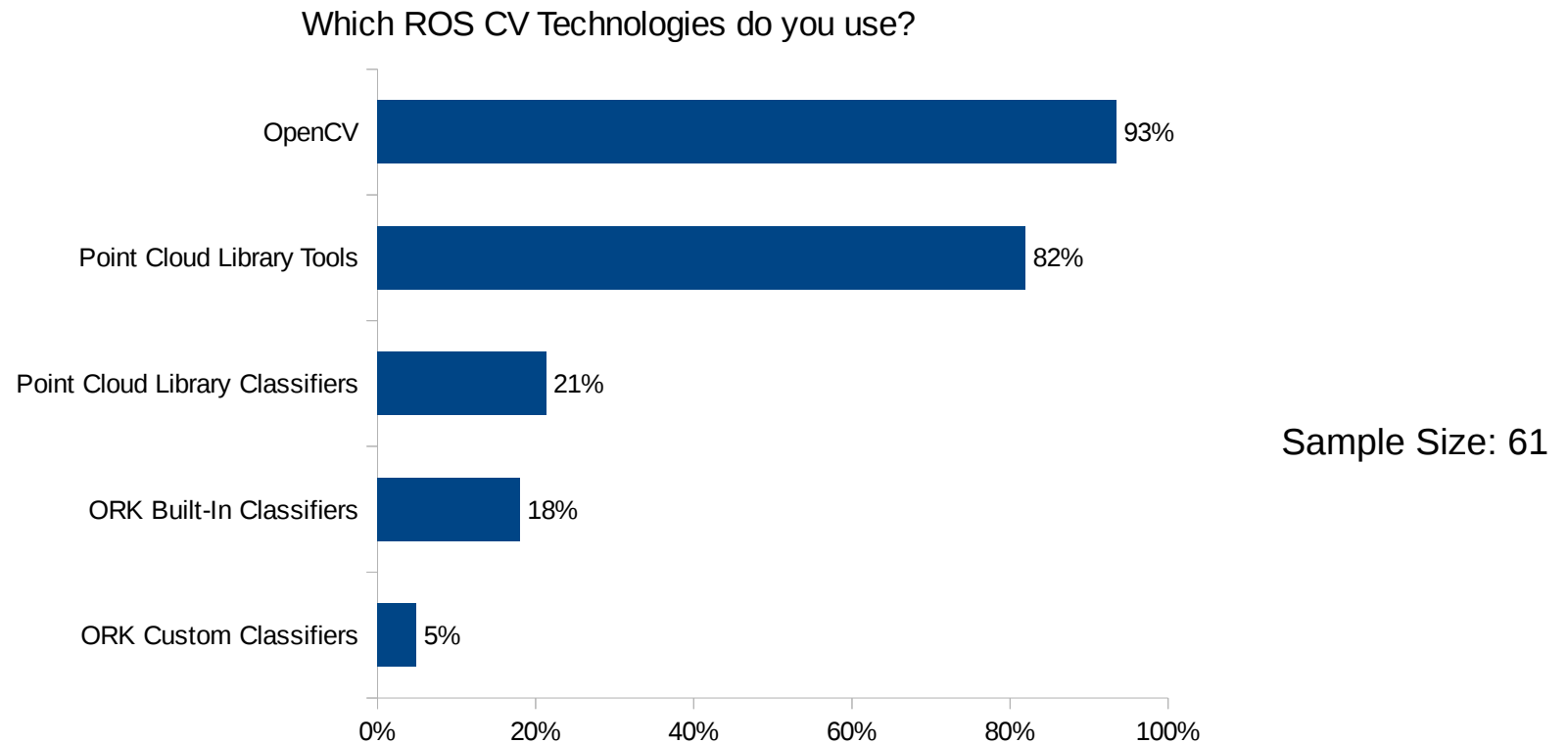


Technologies and Hardware

Navigation is ubiquitous, but 3D object detection
And feature extraction are also common



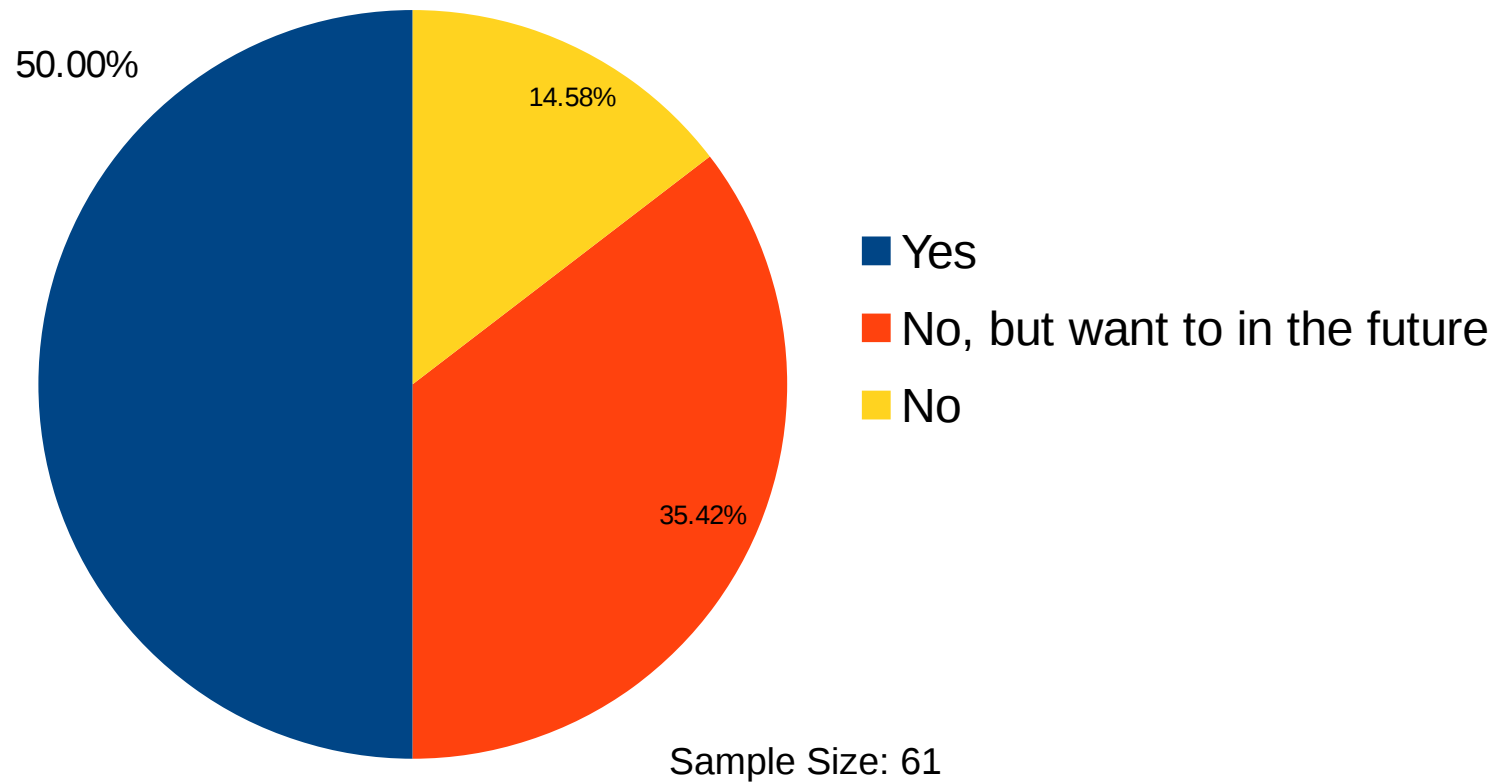
Technologies and Hardware



Point Cloud Library and OpenCV have nearly equal usage among respondents

Gazebo/ROS CV Usage

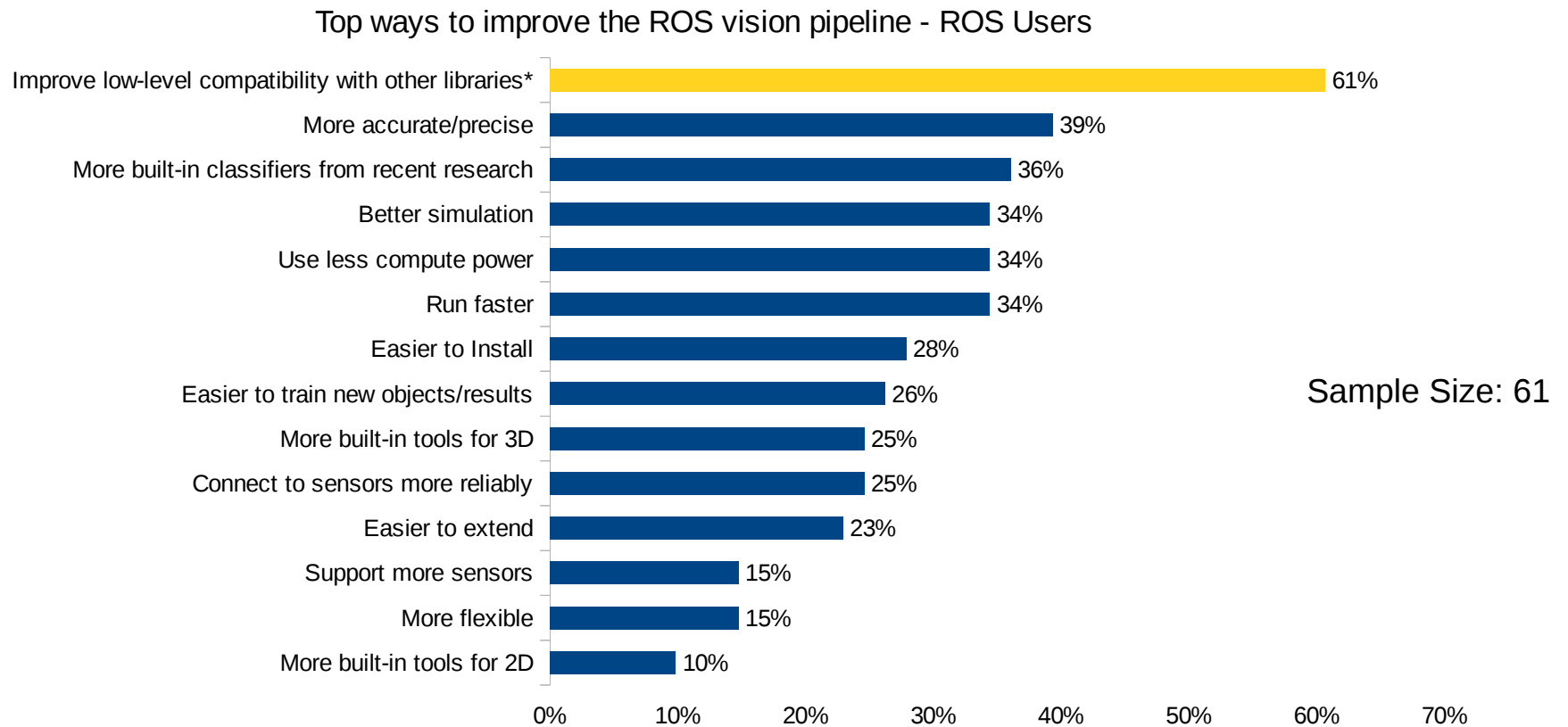
Have you used computer vision in Gazebo? - ROS Users



Gazebo/ROS CV Usage

- 32% of Gazebo CV users gave positive feedback on using computer vision in Gazebo, usually saying how useful it was to have simulated scenes and sensors.
- Realistic rendering was by far the most-requested feature, followed by better camera noise models.
- Among those who were not using CV in Gazebo, the main factor was the difficulty of setting up realistic worlds.
- Gazebo tutorials were also mentioned as a possible improvement area

Improvements

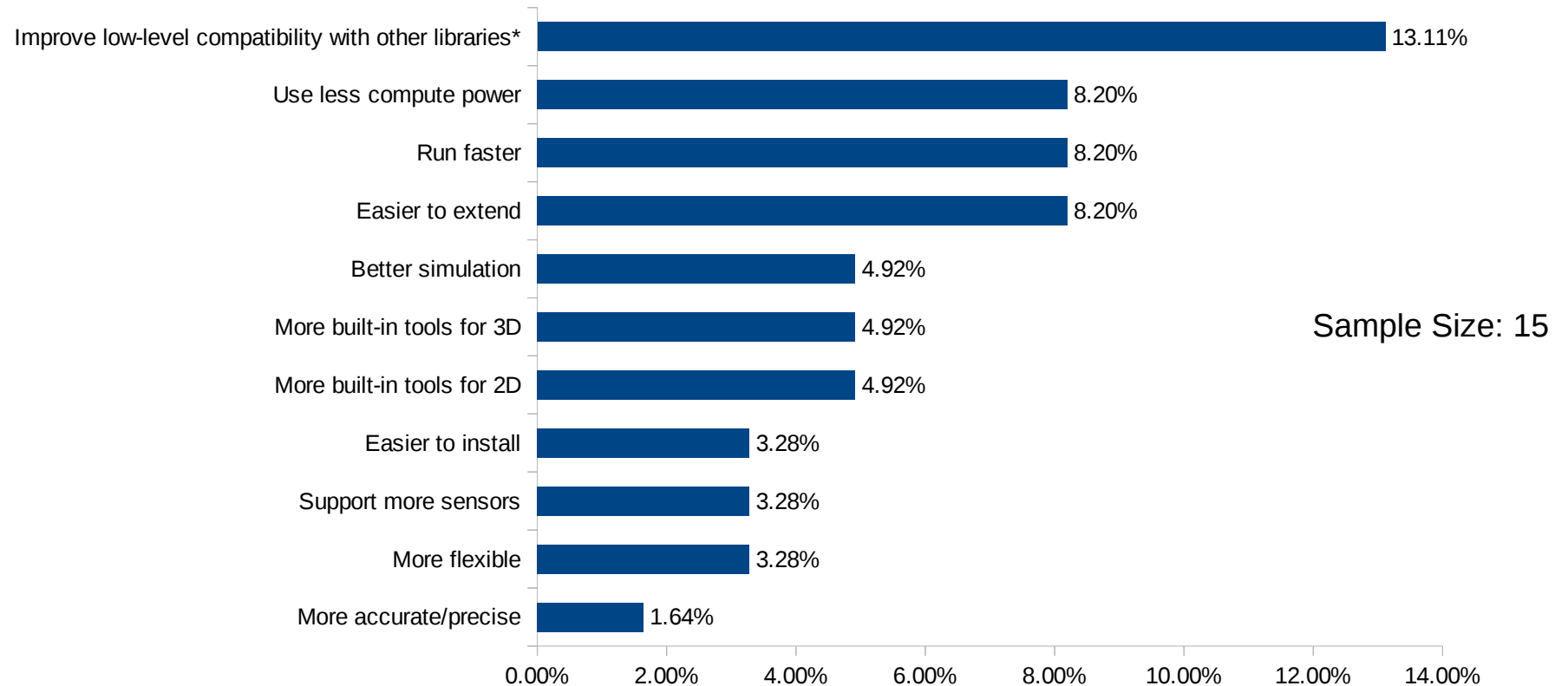


Respondents were asked to choose up to 5 options.

* "Other libraries" was listed as "OpenCV, Keras, TensorFlow, Caffe, etc."

Improvements

What types of improvements would have to be made to ROS's vision pipeline for you to use it?
(asked to non-ROS users)



Respondents were asked to choose up to 5 options.

* "Other libraries" was listed as "OpenCV, Keras, TensorFlow, Caffe, etc."