Person Following Robots

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ROSCON 2017, September 22, 2017

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Person Following Robots: 2 approaches

- Using Selected Online Ada-Boosting
    - Uses Depth information on top of Ada-Boosting
    - Tested with 2 stereo cameras (ZED and Bumblebee 2)
    - Works at 15fps on 2nd Gen i7 CPU

- Using CNNs
    - CNN Trained Online
    - Tested with 2 stereo cameras (ZED and Bumblebee 2)
    - Works at 20fps on 7th Gen i7 with GTX 1060 GPU.
Different cases our approach can handle

People Wearing Similar Clothes under occlusions

Appearance changes Person removes his jacket

Partial and complete Occlusions
Different cases our approach can handle

<table>
<thead>
<tr>
<th>Picking up and bag</th>
<th>Sitting and crouching</th>
<th>Facing side to the robot</th>
<th>Illumination changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Picking up and bag" /></td>
<td><img src="image2" alt="Sitting and crouching" /></td>
<td><img src="image3" alt="Facing side to the robot" /></td>
<td><img src="image4" alt="Illumination changes" /></td>
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</tbody>
</table>
CNN Based Approach
• CNN trained online in real time, tracking runs at 20fps on a 7th Gen i7 with GTX 1060 GPU
• Tested in 11 different places, dataset publicly available
• Can follow any object not just human

Selected Online Ada-Boosting (SOAB) Based Approach
• Built on top of Ada-boosting approach, runs at 15fps at 2nd Gen i7
• Tested in 4 different places, dataset publicly available
• Can follow any object not just human
Conclusion

- Project pages links with videos:
  - [http://jtl.lassonde.yorku.ca/2017/05/person-following-cnn/](http://jtl.lassonde.yorku.ca/2017/05/person-following-cnn/)
  - [http://jtl.lassonde.yorku.ca/2017/02/person-following/](http://jtl.lassonde.yorku.ca/2017/02/person-following/)

- Code:
  - We are selling it, looking for buyers
  - Contact me [raghavendersahdev@gmail.com](mailto:raghavendersahdev@gmail.com) or +1-647-518-4406 for more details

- Acknowledgement
  - NSERC Canadian Network on Field Robotics
  - Canada Research Chairs Program
  - All participants in the videos (Amir, Bikram, Omar, Oscar, Toni)
  - Video Credits: Sidharth