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Master's Thesis: Object Detection with a novel Prototype 360° camera

The increasing demand for advanced sensing technologies in robotics is driving the development of groundbreaking solutions in object detection and classification. This master's thesis offers a unique opportunity to explore the capabilities of a novel prototype 360° camera, not yet available on the market. By working on this cutting-edge technology, you will dive into futuristic applications and help shape the next generation of sensing in robotics.

As this camera is relatively unexplored, the research provides an exciting opportunity for potential publication of findings and collaboration with the industrial partner developing the camera, offering valuable real-world exposure and insights.

Task Description:

- Review the state-of-the-art in 360° camera systems and object detection methods.

- Analyze and adapt existing detection/classification algorithms for the prototype camera.

- Develop innovative algorithms optimized for the camera's unique capabilities.

- Test and evaluate solutions on real-world datasets collected with the camera.

- Collaborate with the industrial partner to gain insights and refine the implementation.

- Assess the potential for publishing results in relevant journals or conferences.

Requirements:

- Solid background in computer vision, machine learning, or robotics.
- Proficiency in Python and deep learning frameworks (e.g., TensorFlow, PyTorch).
- Familiarity with ROS/ROS2 and image processing is a plus.
- Strong motivation for cutting-edge research and potential publication.
- Strong mathematical and statistical skills to analyze experimental results and evaluate algorithm performance.
- Ability to conduct independent research and innovative thinking to tackle challenging problems in computer vision

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