ICIRA 2024 Special Session Proposal

Title of the Proposal:

Advancements in Machine Vision for Enhancing Human-Robot Interaction

Technical Outline of the Session and Topics:

As the integration of robots into various aspects of human life continues to expand, the need for efficient and intuitive human-robot interaction (HRI) mechanisms becomes increasingly critical. Machine vision, with its ability to enable robots to perceive and understand the surrounding environment, plays a pivotal role in enhancing HRI. This special session aims to explore the latest advancements, challenges, and future directions in utilizing machine vision for improving HRI.

Outline of the Session:

This special session aims to bring together researchers, practitioners, and industry experts to discuss recent developments in machine vision for HRI. The session will provide a platform for exchanging ideas, sharing experiences, and fostering collaborations to address the challenges and opportunities in this emerging field.

We welcome researchers to share their latest research findings from both academia and industry, including but not limited to the following

Topics of the Session:

- *Sensor Fusion for Enhanced Perception: Techniques for integrating multiple sensors, such as cameras, LiDAR, and depth sensors, to improve perception accuracy and robustness in various environments.*
- *Object Recognition and Tracking: Methods for detecting, recognizing, and tracking objects in real-time, enabling robots to interact with objects and humans more efficiently and safely.*
- *Gesture and Emotion Recognition: Approaches for recognizing human gestures and emotions using machine vision, facilitating more intuitive and natural HRI.*

- ***Human Activity Recognition:*** *Algorithms for recognizing and interpreting human activities, enabling robots to understand and respond to human behavior effectively.*
- ***Gaze Tracking:*** *Approaches for estimating and tracking gaze, enabling robots to understand human intention.*
- ***Safety and Ethics in HRI:*** *Discussions on safety mechanisms and ethical considerations related to using machine vision in HRI, ensuring responsible deployment of robotic systems.*

Contact details of the Session Organizers

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