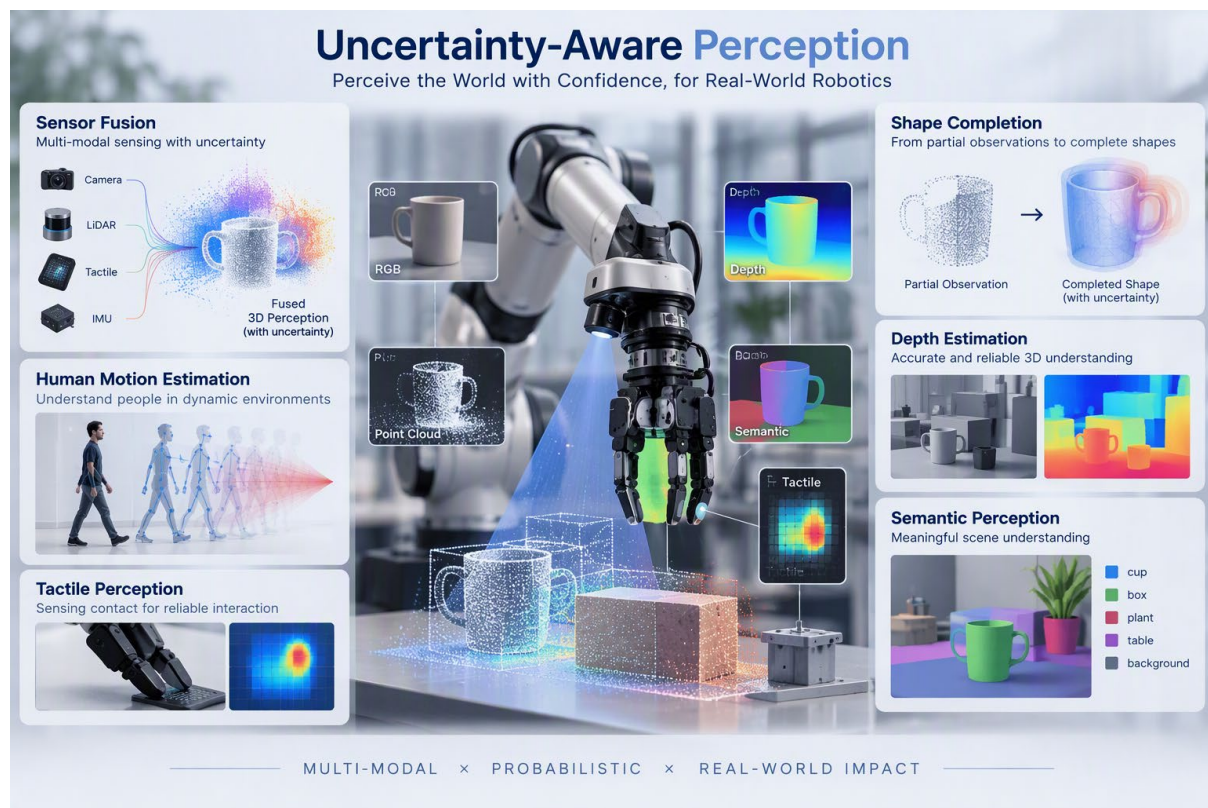


Uncertainty-Aware Perception



[Credit: Image generated by AI]

Overview

Perception serves as the foundation of intelligent robotic systems, enabling robots to perceive, interpret, and interact with the physical world. While modern perception systems have achieved remarkable performance, they often struggle to reason about uncertainty arising from sensor noise, occlusions, partial observations, ambiguous environments, and distribution shifts.

This research direction focuses on developing probabilistic perception algorithms that allow robots to estimate not only what they observe, but also how certain they are about their observations. By combining machine learning, probabilistic inference, and multi-modal sensing, we seek to build perception systems that are reliable, robust, and deployable in real-world environments.

Research Topics

Examples of topics of interest include, but are not limited to:

- Sensor Fusion
- Shape Completion
- Depth Estimation
- Semantic Perception

- Human Motion Estimation
- Grasp Prediction
- Tactile Perception

with an emphasis on:

- Probabilistic Perception
- Uncertainty Quantification
- Bayesian Inference

Prospective Students and Researchers

We welcome highly motivated PhD students and postdoctoral researchers with backgrounds in Robotics, Machine Learning, Computer Vision, Artificial Intelligence, Control, Applied Mathematics, Statistics, Electrical Engineering, or related fields.

Candidates interested in this research direction are encouraged to follow the instructions on the PI website and make an application.