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Spatial robot vision: spatial representation learning for geometric reasoning

Our world is structured, exhibiting diverse and time-varying structural patterns. This vast variability enormously complicates the task of capturing descriptive representations of the world via learning, especially when targeting representations which hold a broad validity. Robotic applications rely on such representations to perceive specific attributes of the environment. This perception process leads to robotic skills such as navigation and object manipulation.

In the first part of the lecture common approaches for pose-aware object detection will be addressed. In the second part, diverse applied examples of learned geometric reasoning in challenging task settings will be presented and analyzed.