



<b>Topic</b>	<b>Learning Visual representations for Robot tasks</b>
<b>Abstract</b>	As humans, we can learn different tasks just by observing others performing the same tasks and trying to replicate their actions. Recently, there have been a few works aimed at teaching robots in a similar manner i.e. from just video demonstrations. Can this be improved using better representations of demonstrations from a robotics standpoint for better generalization powers?
<b>Language</b>	English
<b>Exemplary Issues</b>	Learning robotic tasks either requires the user to kinesthetically teach the robot to learn from demonstrations, for which generating more samples is expensive, or by using reinforcement learning, which requires many samples by trial and error. However, there exists a large set of visual datasets in the domain of action recognition which can easily provide a reference to teach tasks to robots. Given recent developments in the integration of learning tasks from visual demonstrations, the main focus would be on developing similar algorithms to enable unsupervised or self-supervised learning of robotic tasks from video data.
<b>Pre-requisites</b>	Programming knowledge of C++ or Python Basic knowledge of Deep Learning Reinforcement Learning (optional)
<b>Contact</b>	The exact focus can be determined individually with the supervisors. The work is supervised by Vignesh Prasad, Prof. Dr. Jan Peters and Prof. Dr. Dr. Ruth Stock-Homburg at the Chair of Marketing and Human Resources Management. Contact: <a href="mailto:vignesh.prasad@tu-darmstadt.de">vignesh.prasad@tu-darmstadt.de</a>