

AUSSCHREIBUNG SEMINARARBEIT (DE/EN)

Title

Adaptive Task Sharing between a Human and a Cobot in Assembly using a CBBA Algorithm in MATLAB

Problem Statement

Task allocation between a human and a robot is a widely discussed topic. One approach to solve this allocation-problem is the consensus-based-bundle-algorithm. This algorithm has been applied in several allocation problems.

The objective of this seminar paper is to find out, if this algorithm can be applied for an industrial cobot and a human worker on the shop floor. The decision framework (criteria) and an assembly use case will be provided!

Programming will be part of this seminar paper, but you don't have to start from zero! The MATLAB sources can be found via this link:

<http://acl.mit.edu/projects/consensus-based-bundle-algorithm>

Research Question

Is the CBBA algorithm suitable for adaptive task sharing in HRI in assembly?

Objectives / Main Tasks

1. Get to know the CBBA file for MATLAB.
2. Get to know the decision-making framework for adaptive task sharing.
3. Identify if the algorithm is suitable to solve the decision-making framework.
4. Try to solve the problem with the algorithm.
5. What is needed/What are the problems/challenges when implementing the algorithm?

Deliverables

- Written seminar paper (15-20 pages) on adaptive task sharing and the CBBA algorithm.
- MATLAB files

Timetable

- Start: March/April 2021, Duration: 1-2 month

If you are interested let us know!

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