

Title (en)

METHOD AND SYSTEM FOR DETERMINING OPTIMIZED PROGRAM PARAMETERS FOR A ROBOT PROGRAM

Title (de)

VERFAHREN UND SYSTEM ZUR BESTIMMUNG VON OPTIMISIERTEN PROGRAMMPARAMETERN FÜR EIN ROBOTERPROGRAMM

Title (fr)

PROCÉDÉ ET SYSTÈME DE DÉTERMINATION DE PARAMÈTRES DE PROGRAMME OPTIMISÉS POUR UN PROGRAMME DE ROBOT

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Application

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Abstract (en)

[origin: WO2022022784A1] The invention relates to a method for determining optimized program parameters for a robot program, wherein the robot program is used to control a robot having a manipulator, preferably in a robot cell, comprising the steps: creating the robot program by means of a component-based graphical programming system on the basis of user inputs, wherein the robot program is formed from program components which are parameterizable via program parameters, and wherein initial program parameters are generated for the program components of the robot program; providing an interface for selecting one or more critical program components, wherein optimizable program parameters can be defined for the critical program components; carrying out an exploration phase for exploring a parameter range in relation to the optimizable program parameters, the robot program being carried out multiple times, the parameter range being scanned for the critical program components and trajectories of the robot being recorded such that training data are present for the critical program components; carrying out a learning phase in order to generate component representatives for the critical program components of the robot program on the basis of the training data collected in the exploration phase, wherein a component representative represents a system model which, in the form of a differentiable function, maps a specified state of the robot and specified program parameters to a predicted trajectory; carrying out an inference phase for determining optimized program parameters for the critical program components of the robot program, wherein optimizable program parameters of the component representative are iteratively optimized in respect of a specified target function by means of a gradient-based optimization method using the component representative. The invention furthermore relates to a corresponding system.

IPC 8 full level

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