

IEEE Xplore is experiencing intermittent performance issues. If you are having difficulty using the site, please wait a few minutes and try again. Our technical teams are working as quickly as possible to resolve the problem. We apologize for the inconvenience.

IEEE.org

IEEE Xplore

IEEE-SA

IEEE Spectrum

More Sites

Cart

Create Account

Personal Sign In

Access provided by:
Kongu Engineering College

Sign Out

All

ADVANCED SEARCH

Conferences > 2021 Third International Conf...

Model Identification of 3R Palnar Robot using Neural Network and Adaptive Neuro-Fuzzy Inference System

Publisher: IEEE Cite This PDF

R. Subasri ; R. Meenakumari ; R. Velmath ; Srinivetha Pongiannan ; M. Sri Sai Mani R... All Authors

8 Full Text Views

Alerts

Manage Content Alerts

Add to Citation Alerts

Abstract

Document Sections

I. Introduction

II. Data Generation

III. Model Identification

IV. Results and Discussion

V. Conclusion

Authors

Download PDF

Abstract:The robot is used in many industries for various important purposes like welding, soldering, painting and material handling works like sorting, palletizing, picking, pack... [View more](#)

► Metadata

Abstract: The robot is used in many industries for various important purposes like welding, soldering, painting and material handling works like sorting, palletizing, picking, packing, etc. To do the work perfectly the robot's inverse kinematics model is very much important. Usually, the traditional method such as iterative, geometric, and algebraic is used to calculate the inverse kinematics model. A robot with 2 or fewer degrees of freedom, the finding of inverse kinematics by the traditional method is quite simple. But if the degree of freedom increases then the model identification becomes more complex and too expensive in comparison. To overcome this solution, we employ artificial intelligence techniques are used. Two methods of artificial intelligence like neural network and adaptive neuro-fuzzy inference system are used to identify the inverse

Keywords

Metrics

More Like This

kinematics of 3R planar robot. The input data like X and Y coordinates and output data like joint angles θ_1 , θ_2 and θ_3 are generated using the forward kinematics equation of the robot. In both methods, the input and output data are given to train the model. The training of the model is stopped and finalized when the error of the model comes under the tolerable limit. For evaluating the designed model, both models are compared with the derived algebraic model of the robot. The comparison helps to prove that the ANFIS model is better than the NN model

Published in: 2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA)

Date of Conference: 2-4 Sept. 2021 **DOI:** 10.1109/ICIRCA51532.2021.9544745

Date Added to IEEE Xplore: 01 October 2021 **Publisher:** IEEE

► ISBN Information: **Conference Location:** Coimbatore, India

Contents

I. Introduction

As strange as it may appear, there is no universal description of a robot. Still, many important features that a robot should take, which may aid you to regulate what is and is not a robot. It should permit users to choose which features must be constructed into a mechanism earlier it can be assumed as a robot. Then a robot may be described as a gadget that performs human-like functions. The description of a robot, as per the American Society of Robotics is that a robot is a reprogrammable, versatile manipulator that is designed to move materials, components, tools, and particular devices using varied programmed motions to execute a variety of tasks. Advanced robot arms and kinematic machines, usually are built by relating various joints with stiff linkages. The initial possible connection by the robot is generally permanent. Depending on the output style required by a handful of joints, several linkages are accessible.

Authors

Figures

References

Keywords

Metrics

IEEE Personal Account

Purchase Details

Profile Information

Need Help?

Follow

CHANGE USERNAME/EMAIL/PHONE

VIEW PURCHASED DOCUMENTS

COMMUNICATIONS PREFERENCES

PROFESSION AND EDUCATION

TECHNICAL INTERESTS

WORLDWIDE: +1 732 981 0060

CONTACT & SUPPORT

IEEE websites place cookies on your device to give you the best user experience. By using our websites, you agree to the placement of these cookies. To learn more, read our Privacy Policy.