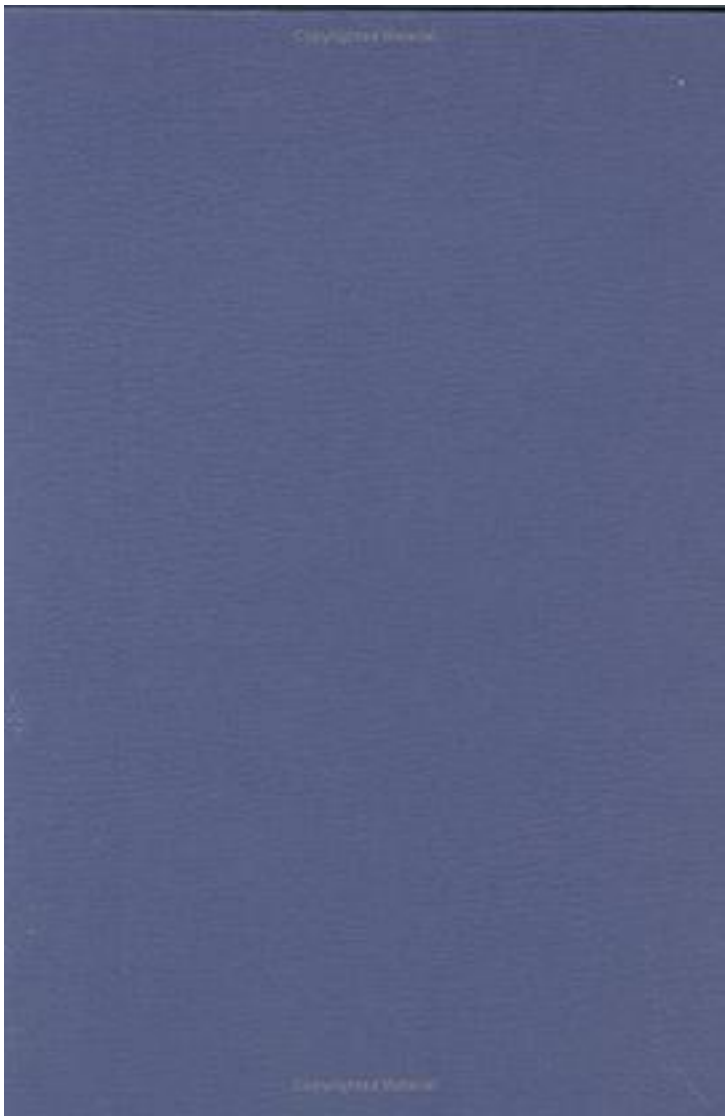
Adaptive Neural Network Control of Robotic Manipulators



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There has been considerable research interest in neural network control of robots, and satisfactory results have been obtained in solving some of the special issues associated with the problems of robot control in an "on-and-off" fasion. This text is dedicated to issues on adaptive control of robots based on neural networks. The text has been tailored to give a comprehensive study of robot dynamics, present structured network models for robots, and provide systematic approaches for neural network based adaptive controller design for rigid robots, flexible joint robots, and robots in constraint motion. Rigorous proof of the stability properties of adaptive neural network controllers is provided. Simulation examples are also presented to verify the effectiveness of the controllers, and practical implementation issues associated with the controllers are also discussed.

作者介绍:

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标签

专业

评论

使用神经网络NN带来常数项的误差，用滑膜，sgn函数来弥补，随即引入rise控制器。然而神经网络RISE控制器来控制manipulator时必须要求disturbance足够smooth……对激活函数进行一阶泰勒展开，对自动适应的两个矩阵使用投影来upper bound。用NN来拟合desired trajectory的dynamic获得global值，但同时RISE也会带来semi global和一个通过中值定理来ub的项……这样一来，精度就无法完全保证了啊……书里啥也没说……我无语……

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书评

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