

scribed by a perturbed function in the state space model. The main result shows that a smooth state feedback can be formed for ensuring globally robust stability if the system is of robust minimum-phase and the nominal system has relative degree one. The design method proposed in this paper can be extended to the case of the nonlinear system with the relative degree $r > 1$ under certain geometrical conditions.

References

- [1] Lin W. Global robust stabilization of minimum-phase nonlinear systems with uncertainty [J]. *Automatica* 1997, 33(3):453-462
- [2] Lin W and Shen T. Robust passivity and feedback design for minimum-phase nonlinear systems with structural uncertainty [J]. *Auto-*

matica, 1999, 35(1):35-48

- [3] Shen T, L Xie and K Tamura. Robust almost disturbance decoupling for nonlinear systems with structural uncertainty [A]. *Proceedings of 37th IEEE CDC [C]*, Tampa, 1998, 5:4107-4108
- [4] Chen D. *The Geometry Theory of the Nonlinear System [M]*. Beijing: The Scientific Press, 1988
- [5] Qu Z and Dawson D. *Robust Tracking Control of Robot Manipulator [M]*. New York: IEEE Press, 1995, 33-39
- [6] Isidori A. *Nonlinear Control Systems [M]*. 3rd ed. London: Springer, 1995

本文作者简介

焦晓红 1966年生, 1991年于东北重型机械学院自动化系获硕士学位, 燕山大学自动化系副教授, 目前在日本上智大学攻读博士学位, 主要从事非线性系统, 鲁棒控制, 自适应控制等理论研究工作。
 裴化源 见本刊2001年第6期第826页。
 申铁龙 见本刊2001年第1期第6页。

Main Contents of the Next Issue

- A Hybrid Control for Autonomous Systems of Electric Power Supply SUN Kai, ZHAO Qianchuan and ZHENG Dazhong
- Optimal Control for Hybrid Systems Based on Dynamical Programming YIN Zengshan, GAO Chunhua and LI Ping
- Entrainment and Migration Control of Permanent-Magnet Synchronous Motor System LI Zhong, ZHANG Bo and MAO Zongyuan
- Generalized ANN Inverse Control Method HE Dan, DAI Xianzhong and WANG Qin
- Adaptive Selection of Crossover and Mutation Probability of Genetic Algorithm and Its Mechanism CHEN Changzheng and WANG Nan
- Analysis Method for Nash Strategy of Linear Time Variant Quadratic Differential Game via Wavelets (I) ZHANG Chengke and WANG Xingyu
- A Reachability and Properties of Discount Asset Optimization under Transaction Costs XU Shimeng and ZHANG Yuzhong
- Structure Analysis of Typical Fuzzy Controllers with Nonlinear Rules and Unevenly Distributed Membership Functions for Input and Output Variables FAN Xingzhe and ZHANG Naiyao
- A Spline Method for Computing a Class of Minimum-Energy Control for Multivariable Linear Systems ZHANG Xinjian and LU Shirong
- Adaptive Predictive Control of a Class of Nonlinear System GUO Jian, CHEN Qingwei, ZHU Ruijun and HU Weili
- Exponential Bidirectional Associative Memory Model with Intraconnection CHEN Songcan and LIU Zheng
- The Iterative Learning Control and Convergence Analysis for Nonlinear Industrial Process Control Systems RUAN Xiao'e, WAN Baiwu and GAO Hongxia
- Research of the Particle Size Neural Network Soft Sensor for Concentration Process ZHANG Xiaodong, WANG Wei and WANG Xiaogang
- Study on the Stability of the Volterra Series Model Based Adaptive Control Systems DANG Yingnong and HAN Chongzhao
- The Research of the Controllers for Machine Tool Linear Motor Direct Feed Drives CHEN Zhihua, LI Shengyi, YANG Shunzhou and CUI Hongjuan
- An Investigation on the Partially Control of the Torsional Vibration of the Turbogenerator Shaft System ... HAO Zhiyong and FU Luhua