# Table of Contents

## MA1-1: Biorobotics

- **Experiments with a Teleoperated System for Improved Bio-Micromanipulations**
  - Leonardo S. Mattos, Edward Grant, Randy Thresher, Kim Kluckman, Darwin G. Caldwell
  - Page 1

- **Biomimetic Design for Bipedal/Quadrupedal Motion in a Robotic Primate**
  - S. Davis, Darwin G. Caldwell
  - Page 7

- **An Intelligent Monitor System of Otologic Drill to Prevent Drill Bit Entangling with the Cotton**
  - Tianyang Cao, Xisheng Li, Zhiqiang Gao, Guodong Feng, Peng Shen
  - Page 13

- **A New Piezo-driven Ultrasonic Cell Microinjection System**
  - Haibo Huang, James K. Mills, Dong Sun
  - Page 18

- **A Cubic CPG Model for Snake-like Robot to Adapt to Environment**
  - Chaoquan Tang, Shugen Ma, Bin Li, Yuechao Wang
  - Page 24

- **Design and Analysis of a 6-DOF Parallel Robot Used in Artificial Cervical Disc Replacement Surgery**
  - Heqiang Tian, Dongmei Wu, Zhijiang Du, Lining Sun
  - Page 30

## MP1-1: Robot Hands & Grasping

- **The Development and Maintenance of a Reliable Interactive Dexterous Robot Hand for Museum Exhibition**
  - S. Davis, Darwin G. Caldwell
  - Page 36

- **Impedance Analysis for Piezoelectric Energy Harvesting Devices under Displacement and Force Excitations**
  - Junrui Liang, Wei-Hsin Liao
  - Page 42

- **Using Superquadrics for the Approximation of Objects and Its Application to Grasping**
  - Marcus Strand, Zhixing Xue, Marius Zoellner, Rüdiger Dillmann
  - Page 48

- **High Performance Robotic Gripper Based on Choice of Feedback Variables**
  - Page 54

- **Imitation Learning of Hand Gestures and Its Evaluation for Humanoid Robots**
  - Anand Thobbi, Weihua Sheng
  - Page 60

- **Kinematics Analysis of Bridge-type Micro-displacement Mechanism Based on Flexure Hinge**
  - Guo Ye, Wei Li, Yuqiao Wang, Xuefeng Yang, Ling Yu
  - Page 66

## MP2-1: Multi-robot

- **Motion Planning of Multiple Mobile Robots with Formation Requirement**
  - Shuang Liu, Dong Sun, Changan Zhu
  - Page 71

- **A Coordination Framework for Weakly Centralized Mobile Robot Teams**
  - Ke Xu, Peng Song
  - Page 77

- **Efficient Localization of Multiple Robots in a Wide Space**
  - Wonyeon Choi, Yan Li, JaeHyun Park, Jangmyung Lee
  - Page 83
Effects of Algorithmic Parameters on Swarm Robotic Search
Ying Tan, Songdong Xue, Jianchao Zeng, Jengshyang Pan, Tienszu Pan

Research on Architecture of Multiple Robots System Based on the Dynamic Networks
Yanmin Lei, Qidan Zhu, Zhibin Feng

MA1-2: Human Interface Design & Digital Design
Effect of Tilt Angle of Tablet on Pen-based Input Operation Based on Fitts’ Law
Dongxing Bao, Yizhong Xin, Xiangshi Ren
Lever Cursor: A Bimanual Selection Technique for MultiTouch Tabletop
Jibin Yin, Hua Liu
The Empirical Study of A Novel Bimanual Scrolling Technique
Jibin Yin, Hua Liu
A Self-controlled Robot for Upper Limb Rehabilitation
Chunguang Li, Yoshio Inoue, Tao Liu, Kyoko Shibata, Koichi Oka
An Algorithm for Selecting Chinese Features Based on TF-NIDF Weight
Yongli Li, Yanheng Liu, Mo Shi, Liyan Dong, Zhen Li, Lixiang Liu, Pengfei Yan

MP1-2: Models for Human & Informatic
A Novel Support Vector and K-Means Based Hybrid Clustering Algorithm
Liang Sun, Shinichi Yoshida, Yanchun Liang
Adaptive Multi-Issue Agent-Based Negotiation Model
Chun Shen, Xizuang Peng, Yi Lu, Lei Liu
A Communicator Vista Image Generation with an Overlaid Location Indicator for the Virtual Window System
Kazunori Iwaki, Atsushi Miyagawa, Kazunori Shimamura
Study of Emergency Resource Distribution Model Based on Genetic Algorithm
Yongli Li, Yanheng Liu, Hailong Zhang, Jiantao Xiao, Yu Zhao, Weizhou Guan
The Functional Role of Implicit Memory on Gaze-evoked Attention Orienting
Qian Qian, Keizo Shinomori, Miao Song
Implementation and Analysis of Moving Objects Detection in Video Surveillance
Henan Guo, Yanchun Liang, Zhezhou Yu, Zhen Liu

MP2-2: Human Capability & New Methods for Informatics
Genetic Algorithm with Affinity Propagation
Chunguo Wu, Hao Gao, Lianjiang Yu, Yanchun Liang, Rongwu Xiang
An Empirical Comparison of the Locations of Haptic Feedback in Steering Tasks
Minghui Sun, Xiangshi Ren
The Contributions of Facial Features on the Smiling and Angry Expressions Judgment and its Implication for the Computer Recognition System
Miao Song, Keizo Shinomori, Shiyong Zhang
A Novel Method of Mining Frequent Item Sets
Liyan Dong, Zhaojun Liu, Mo Shi, Pengfei Yan, Zhuo Tian, Zhen Li
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Estimation of Lower Limb Motion Using Physical and Virtual Sensors</td>
<td>179</td>
</tr>
<tr>
<td>Kun Liu, Tao Liu, Kyoko Shibata, Yoshio Inoue</td>
<td></td>
</tr>
<tr>
<td>Analysis of Muscle Forces in Lower Limbs Based on Wearable Sensors</td>
<td>185</td>
</tr>
<tr>
<td>Enguo Cao, Yoshio Inoue, Tao Liu, Kyoko Shibata</td>
<td></td>
</tr>
<tr>
<td>MA1-3: Modeling &amp; Simulation I</td>
<td></td>
</tr>
<tr>
<td>An Assignment Project Based Approach for Engineering Education</td>
<td>191</td>
</tr>
<tr>
<td>Guangyu Liu, Yuan Ren</td>
<td></td>
</tr>
<tr>
<td>A General Modeling Method that Simulates Photovoltaic Arrays for Environmental and Electrical Variability</td>
<td>195</td>
</tr>
<tr>
<td>Guangyu Liu, Sing Kiong Nguang</td>
<td></td>
</tr>
<tr>
<td>Modeling and Simulation of the Thermal Network in a Space Gear-Bearing System</td>
<td>201</td>
</tr>
<tr>
<td>Liqun Qi, Guangyu Zhang, Yongjin Liu</td>
<td></td>
</tr>
<tr>
<td>Modeling and Simulation of Variable Direction Rotatable Axis of Variable Vector Propeller of Submersible Vehicle in Vertical Motion</td>
<td>206</td>
</tr>
<tr>
<td>Sheng Liu, Dong Ren, Bing Li, Xucheng Chang, Yuchao Wang</td>
<td></td>
</tr>
<tr>
<td>Research of Anti-acceleration Disturbance for the Micro-machined Airflow Inclinometer</td>
<td>212</td>
</tr>
<tr>
<td>Wei Zhang, Yu Liu, Fuxue Zhang</td>
<td></td>
</tr>
<tr>
<td>Fault Detection and Diagnosis in Activated Effluent Disposal Process Based on PCA</td>
<td>216</td>
</tr>
<tr>
<td>Dong Li, Ze Zhang, Hui Wang</td>
<td></td>
</tr>
<tr>
<td>MP1-3: Modeling &amp; Simulation II</td>
<td></td>
</tr>
<tr>
<td>Modeling and Parameter Identification of a Tractor Semitrailer/Driver Closed-loop System Using the Simulated Annealing (SA) Optimization Approach</td>
<td>222</td>
</tr>
<tr>
<td>Jianhua Chen, Zhaoheng Liu</td>
<td></td>
</tr>
<tr>
<td>Information System Hierarchical Fuzzy Evaluation Based on Bottom Index Clustering</td>
<td>228</td>
</tr>
<tr>
<td>Leilei Liu, Shiping Yang</td>
<td></td>
</tr>
<tr>
<td>Petri Net and GASA Based Approach for FSP with Multi-workstation Operation</td>
<td>234</td>
</tr>
<tr>
<td>Meng Yang, Ze Tao</td>
<td></td>
</tr>
<tr>
<td>A Method for Determining Number of Coherent Signals with Arbitrary Plane Array</td>
<td>240</td>
</tr>
<tr>
<td>Jiaqi Zhen, Xicai Si</td>
<td></td>
</tr>
<tr>
<td>Modeling and Simulation for Pressure Character of the Plate-Inclined Axial Piston Type Hydraulic Transformer</td>
<td>245</td>
</tr>
<tr>
<td>Jihai Jiang, Chengqiang Liu, Bin Yu</td>
<td></td>
</tr>
<tr>
<td>A Solution Separation RAIM Scheme Based on Adaptive Clock-bias Model</td>
<td>250</td>
</tr>
<tr>
<td>Liang Li, Lin Zhao, Wei Cao, Shangyue Lou</td>
<td></td>
</tr>
<tr>
<td>MP2-3: Modeling &amp; Simulation III</td>
<td></td>
</tr>
<tr>
<td>Product Information Model and System Integration Based on Generalized CAD</td>
<td>255</td>
</tr>
<tr>
<td>Pengshou Xie, Zhiyuan Rui</td>
<td></td>
</tr>
<tr>
<td>Dynamics Analysis for Cutting Part of Shearer Physical Simulation System</td>
<td>260</td>
</tr>
<tr>
<td>Fang Ren, Zhengyan Liu, Zhaoqian Yang</td>
<td></td>
</tr>
</tbody>
</table>
Simulation and Analysis of the Dual Point-Source Decoying ARM
Ping Huang, Rongrong Yin, Yingjie Han

Datasets Simulator Generation Algorithm for Port Management Spatiotemporal Database
Chang Liu, Lijun Liu, Feng Gao

Fault Prediction of Power-Shift Steering Transmission Based on Support Vector Regression
Yingfeng Zhang, Biao Ma, Jinsong Zhao, Hailing Zhang

Development of Flexible Aircraft Lateral Linear Fractional Transformation Model
Li Zhang, Weiwei Qin, Zhiqiang Zheng

MA1-4: Control Theory I

The Design and Control of the Crustal Movement Simulation System
Changchun Fan, Guodong Yang, En Li, Zize Liang, Min Tan

Switched Stability Design on Canonical Forms
Geng Zhu

DSRV Recovery Control Using Grey Prediction Model
Juan Li, Xiaocheng Shi, Yifei Qin, Guifeng Zhang

Chua System Chaos Synchronization Using Single Variable Feedback Based on LaSalle Invariance Principal
Fengxiang Chen, Chuansheng Zhang, Guangji Ji, Shuang Zhai, Su Zhou

Chaos Control of a Time-Delay Chaotic Neural Network for Information Processing
Tao Wang, Kejun Wang, Nuo Jia

The Study of Nonlinear Vibration of Duffing Equation under Multi-frequency Excitation
Desen Yang, Lei Dong, Guanghui Shao, Jie Shi

MP1-4: Control Theory II

Robust Stability Analysis of Asymptotic Second-order Sliding Mode Control System Using Lyapunov Function
Yaodong Pan, Guangjun Liu, Krishna Dev Kumar

Indirect Adaptive Control for a Class of Unknown Nonlinear Systems Based on LS-SVM
Chunli Xie, Cheng Shao, Dandan Zhao, Juan Wang

Robust Guaranteed Cost Control for Markovian Jump Systems with Time Delay
Yuesheng Luo, Mingye Zhou, Xingyan Zhang, Xu Qi, Xiuping Wen, Ruijuan Chen

Disturbance Observer Based Control for a Class of Nonlinear Systems with Uncertain Exosystem
Yuan Jiang, Li Zeng, Shutang Liu

Robust Guaranteed Cost Control of Linear Systems with Norm Bounded Uncertainties and External Disturbance
Fei Zhang, Guangjun Liu, Hongguang Wang, Lijin Fang

Construction of the Skipping Steps for Preimage Attack of MD5
Ming Mao, Shaohui Chen, Yanjun Li, Shaokun Zeng

MP2-4: Control Applications I

The Simulated Dynamical Photovoltaic Array Systems
Guangyu Liu, Sing Kiong Nguang, Yuan Ren
Azimuth Ultra Low Speed Tracking Control for Direct Driving Brushless Motor
Wei Hu, Jianxun Li, Weiwei Xue, Rong Jiang

Robust Adaptive Synchronization of a Class of Uncertain Non-smooth-air-gap PMSM Chaotic Systems
Dan Zhao, Weihua Tian, Tianlong Zhang, Heli Hu

Research on the Control Method for the Start of Microturbine Generation System
Yanming Li, Hong Guo, Qingming Xie, Peng Yuan

Vibration Characteristics Analysis of a Tilt-Rotor Transmission-Wing System
Jiashun Guo, Sanmin Wang

Dynamic Analysis and Simulation on Multiplexed Controllable Antiskid Device of Friction Hoist
Xingming Xiao, Jun Wu, Qian Wang, Chengming Hu

MA1-5: Information & Image Processing I
Prognostic Experiment for Ball Screw Preload Loss of Machine Tool through the Hilbert-Huang Transform and Multiscale Entropy Method
Jun-Liang Chang, Jen-Ai Chao, Yi-Cheng Huang, Jen-Shueng Chen

Characteristic Polynomial of the QUEST Algorithm
Yang Cheng

Calibration Research on Fish-eye Lens
Xiaofeng Wang, Weijia Feng, Qingjie Liu, Baofeng Zhang, Zuoliang Cao

MP1-5: Information & Image Processing II
Selection of Dimensional Normalization Parameter in Digital Computation of the Fractional Fourier Transform
Huifan Xu, Feng Liu

A New Underwater Acoustic Communication System Based on Fractional Fourier Transform
Yun Chen, Ping Cai, Yilin Wang

Splash Sound Feature Research based on Empirical Mode Decomposition and Hilbert-Huang Spectrum
Sichun Li, Desen Yang, Yang Lu

3D Hypergraph-Oriented Air Flow Analysis Based On PTV
Denis Klimentjew, Nils Erik Flick, Tilt Bosselmann, Jianwei Zheng

Analysis of Stock Market Information ---- A New Financial Engineering Approach
Feng Yao, Yirong Ying, Lingwen Zhang

The Applications of Fractional Fourier Transform in Underwater Acoustic Trajectory Tracking
Yilin Wang, Xiaoxue Wang, Ping Cai
MP2-5: Information & Image Processing III

Bioinformatics Data Mining Using Artificial Immune Systems and Neural Networks 440
Shane Dixon, Xiao-Hua Yu

A New Approach for Carrier Ambiguity Resolution under Multipath Condition 446
Wei Wang, Yuehua Ma, Peng Yang

A Method for Determining the Number of Signals Based on Modified K-means Clustering 451
Chunjie Zhang, Xicai Si, Jiling Xie

Compressed Sensing and Reconstruction with Bernoulli Matrices 455
Gesen Zhang, Shuhong Jiao, Xiaoli Xu, Lan Wang

Data Communication and Information Security Analysis of Wide Area Protection System 461
Cheng Li, Zhongwei Li, Weiming Tong

Resolutions of Some Overlap Signals Based on MUSIC Algorithm 466
Ping Chu, Weijian Si, Shenghe Sun

MA1-6: Information Acquisition I

A Robust Data Association for Simultaneous Localization and Mapping in Dynamic Environments 470
Rex H. Wong, Jizhong Xiao, Samleo L. Joseph

A Blind Guidance System for Street Crossings Based on Ultrasonic Sensors 476
Satoshi Hashino, Ramin Ghurchian

Trajectory Planning of Autonomous Robot Using Advanced Fuzzy Controller 482
Sungha Kim, Chisung Park, Hyun Lee, Jangmyung Lee

Information Acquisition of Truck on Express Highway by Optical Fiber Bragg Grating 486
Shuhua Mo, Dong Yu, Boming Zhang

Hardware/Software Partitioning for Heterogeneous Multicore SOC Using Particle Swarm Optimization and Immune Clone (PSO-IC) Algorithm 490
Li Luo, Hongjun He, Chunke Liao, Qiang Dou, Weixia Xu

Visualization of Linkage Diagrams by System Visual Structure Editor (VSE) 495
V. V. Kuzlyakina, U. N. Slepenko

MP1-6: Information Acquisition II

Oceanographic Data Acquisition and Dissemination Infrastructure for UTM-CSIC Research Vessels 502

The Integration of GPS and Interferometric Quantum Position System for High Dynamic Precise Positioning 508
Chunyan Yang, Dewei Wu, Yonglin Yu

A Large Scale 3D Positioning Method Based on a Network of Rotating Laser Automatic Theodolites 513
Zhigang Liu, Yaozhong Xu, Zhongzheng Liu, Jianwei Wu

The Design and Validation of RF Front-end Platform for GPS Receiver 519
Lin Zhao, Shuaihe Gao, Pengfei Li, Xuechuan Han
Distributed Uniform Attitude Reference of Warship Based on Inertial Measurement
Ali Liu, Hongxu Ma, Hongde Dai

A Study into Plant Dynamics by DYNAMO Computer-aided Design System
Valentina Kuzlyakina, Ludmila Brazhnik

MP2-6: Information Acquisition & Processing

Vision Based Collision Avoidance by Plotting a Virtual Obstacle on Depth Map
Akshay Aggarwal, Astha Kukreja, Pankaj Chopra

Characteristic Analysis and Pattern Recognition of Arc Sound under Typical Penetration Status in MIG Welding
Shujuan Bi, Hu Lan, Hongyan Zheng, Lijun Liu

NAIR: A Novel Automated Intrusion Response System Based on Decision Making Approach
Xin Zan, Feng Gao, Jiujiang Han, Xiaoyong Liu, Jiaping Zhou

Ant Colony Optimization Algorithm Based on Space Contraction
Liqiang Liu, Haijiao Ren, Yuntao Dai

Analysis of Current Sharing and Controller Design Fundamental for Paralleled DC/DC Power Converters
Jiang You, Hui Wang, Fanrong Meng, Jianwen Cui

An Automated Design Flow for MEMS Accelerometers with Sigma-Delta Control
Chenxu Zhao, Tom J. Kazmierski

MA1-7: Diagnosis & Prediction

Engine Spark Ignition Diagnosis with Wavelet Packet Transform and Case-based Reasoning
C.M. Vong, H. Huang, P.K. Wong

Forecasting Daily Ambient Air Pollution Based on Least Squares Support Vector Machines
W.F. Ip, C.M. Vong, J.Y. Yang, P.K. Wong

An Intelligent Approach for Engine Fault Diagnosis Based on Wavelet Pre-processing Neural Network Model
Yansong Wang, Yanfeng Xing, Hui He

A New Failure Mode and Effects Analysis Model of CNC Machine Tool Using Fuzzy Theory
Zhaojun Yang, Binbin Xu, Fei Chen, Qingbo Hao, Xiaocui Zhu, Yanzhou Jia

Improved Performance of Motor Drive Using RBFNN-based Hybrid Reactive Power MRAS Speed Estimator
Jinfeng Xiao, Biwen Li, Xueyu Gong, Yifa Sheng, Jun Chai

Study of Fuzzy Control with Smith Forecast and Compensation for Aeroengine
Shiying Zhang, Xixing Yu, Yu Hu

MP1-7: Fuzzy Control

Decoupled Fuzzy Adaptive Sliding Mode Control for Under-Actuated Systems with Mismatched Uncertainties
Seung-Yong Shin, Joon-Yong Lee, Masanori Sugisaka, Ju-Jang Lee

Hassen Taher Dorrah, Walaa Ibrahim Mahmoud Gabr

Adaptive Fuzzy Logic Based Inspection Robot for High Voltage Power Transmission Line

Guodong Yang, En Li, Changchun Fan, Weiyang Lei, Zize Liang

Fuzzy Switch of High-speed ATO Systems Based on Running Conditions

Hairong Dong, Li Li, Bin Ning

T-S Fuzzy Identical Synchronization of a Class of Generalized Henon Hyperchaotic Maps

Ying Pan, Bo Li, Yuncheng Liu

Study on Control of an Two Hub-Motor Electric Vehicle

Yong Chen, Zhongkui Lu

MP2-7: Fuzzy System

An Analysis Model of Merchant Discount Rate for Services of Credit Card in Commercial Bank Using Fuzzy Logic

Patinee Sakdanupab, Davich Banthao, Adisorn Leelsantitham, Supaporn Kiattisin

Arithmetic Fuzzy Logic-based Representation Approach Versus Conventional Fuzzy Theory for Modeling and Analysis in Fully Fuzzy Environment

Walaa Ibrahim Mahmoud Gabr

Framework and Realization of Ship Product Data Exchange

Jinghua Li

Influences of Soft Prolate Spheroid Baffle on Directivity of Acoustic Vector Sensor

Jianfei Ji, Guolong Liang, Kai Liu, Yang Li

Vehicle Chassis Coordinated Control Strategy Based on Model Predictive Control Method

Changfu Zong, Heqi Liang, Chengwei Tian, Rufei Hu

Design and Control Strategy of Motorcycles Vibration Durability Test Platform

Xiaoli Wang, Yaxiao Wang

TA1-1: Mobile Robot

Effective Target-Following Schemes for Indoor Mobile Robots

Byoung-Suk Choi, Joon-Woo Lee, Ju-Jang Lee

Path Tracking Control Considering Center of Gravity Shift and Load Change for an Omni-directional Walker

Renpeng Tan, Shuoyu Wang, Yinlai Jiang, Kenji Ishida, Masanori Nagano

A Novel Regenerative Braking Method of BLDCM for Wheeled Mobile Robot

Juzhong Zhang, Shengjin Li, Gang Lu, Qixun Zhou

Study on the Dynamics and Motion Capability of the Planetary Rover with Asymmetric Mobility System

Jianjun Du, Mingjun Ren, Jianjun Zhu, Dun Liu

Trajectory Tracking Control of Nonholonomic Wheeled Mobile Robots

Jiang Chang, Qingxin Meng
## TP1-1: Robot Control I

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Novel Bacterial Foraging Algorithm for Automated Tuning of PID Controllers of UAVs</td>
<td>John Oyekan, Huosheng Hu</td>
<td>693</td>
</tr>
<tr>
<td>Petri Net Model Based Specification and Distributed Control of Robotic Manufacturing Systems</td>
<td>Gen’ichi Yasuda, Bin Ge</td>
<td>699</td>
</tr>
<tr>
<td>Dynamics and a Convenient Control Design Approach for a Unicycle Robot</td>
<td>Jie Zhao, Mei Xiong, Hongzhe Jin</td>
<td>706</td>
</tr>
<tr>
<td>A New Robust Controller in the Network-based Teleoperation System with Force Feedback</td>
<td>Ting Chen, Xiufen Ye, Shuxiang Guo</td>
<td>712</td>
</tr>
<tr>
<td>Hybrid Genetic-Ant Colony Algorithm Based Job Scheduling Method Research of Arc Welding Robot</td>
<td>Zhengda Meng, Qinqi Chen</td>
<td>718</td>
</tr>
<tr>
<td>Research on a Central Pattern Generator Bionic Coupling Control System of Robot</td>
<td>Tingling Wang, Wei Guo, Fusheng Zha, Mantian Li</td>
<td>723</td>
</tr>
</tbody>
</table>

## TP2-1: Robot Control II

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Impedance Model for Obstacle Avoidance in a Limb Mechanism Robot</td>
<td>Kenji Tsukamoto, Tomohito Takubo, Kenichi Ohara, Yasushi Mae, Tatsuo Arai</td>
<td>729</td>
</tr>
<tr>
<td>Mechanism and Control of a Spiral Type Microrobot</td>
<td>Qinxue Pan, Shuxiang Guo, Takuya Okada</td>
<td>735</td>
</tr>
<tr>
<td>Control Strategy for Active Vibration Suppression of Flexible Robot Manipulator</td>
<td>M. A. Ahmad, R.M.T. Raja Ismail, M.S. Ramli</td>
<td>741</td>
</tr>
<tr>
<td>Torque Shaping Control for Initial Unstable Passive Dynamic Walker</td>
<td>Jianfei Li, Yantao Tian, Xiaoliang Huang, Hongshuai Chen, Limei Liu</td>
<td>747</td>
</tr>
<tr>
<td>Adaptive Neural Network PID Sliding Mode Dynamic Control of Nonholonomic Mobile Robot</td>
<td>Yandong Li, Zongyi Wang, Ling Zhu</td>
<td>753</td>
</tr>
<tr>
<td>Dynamic Modeling of a Bicycle Robot with Front-Wheel Drive Based on Kane’s Method</td>
<td>Yonghua Huang, Qizheng Liao, Shimin Wei, Lei Guo</td>
<td>758</td>
</tr>
</tbody>
</table>

## TA1-2: Human Machine Interaction

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Assist by a Mobile Manipulator with High Speed Tactile Sensor</td>
<td>Hisashi Yamaguchi, Zhaoxian Xie, Aiguo Ming, Makoto Shimojo</td>
<td>765</td>
</tr>
<tr>
<td>A Real-time Deformation Modeling Scheme of Soft Tissue for Virtual Surgical</td>
<td>Ling Zhu, Xiufen Ye, Xi Ji’er, Yizhou Gu, Shuxiang Guo</td>
<td>771</td>
</tr>
<tr>
<td>Study of Coordinated Motions of the Human Hand for Robotic Applications</td>
<td>Shaochun Sun, Carlos Rosales, Raúl Suárez</td>
<td>776</td>
</tr>
<tr>
<td>A Force Display Method for a Novel Catheter Operating System</td>
<td>Jian Guo, Nan Xiao, Shuxiang Guo, Takashi Tamiya</td>
<td>782</td>
</tr>
<tr>
<td>An Adaptive Modeling Approach Based on ESN for Robotic Belt Grinding</td>
<td>Hongbo Lv, Yixu Song, Peifa Jia, Zhongxue Gan, Lizhe Qi</td>
<td>787</td>
</tr>
</tbody>
</table>
A Pen Pressure Division Method Using Personal Distribution
Yizhong Xin, Yan Li, Xiangshi Ren

TP1-2: Human Machine Interface

Evaluation of Human Pointing Movement Characteristics for Improvement of Human Computer Interface
Qiong Wu, Jiajia Yang, Jinglong Wu

Three-dimensional Motion Analysis for Gesture Recognition Using Singular Value Decomposition
Yinlai Jiang, Isao Hayashi, Masanao Hara, Shuoyu Wang

A Length Compensation Method to Eliminate the Varying Length Defect in One Dimensional Fisheye Views
Hongzhi Song, Yi Fu, Yu Qi, Liang Zhang, Xiaolong Luke Zhang

A Research on Text Analysis in Tibetan Speech Synthesis
Lu Gao, Hongzhi Yu, Yonghong Li, Jie Liu