

2013 International Conference on Control, Automation and Information Sciences

(ICCAIS 2013)

**Nha Trang, Vietnam
25-28 November 2013**



IEEE Catalog Number: CFP1326S-POD
ISBN: 978-1-4799-0571-3

Program

Pre-Conference Workshop and Tutorial

R: Registration

TA01: Robot Control

Application of Neural Networks to Design the Controller for Autonomous Vehicles by Learning Driver's Behavior

Thanh Phuc Le (University of Technical Education Ho Chi Minh City, Vietnam); Ion Stiharu (Concordia University, Canada); Ly Vinh Dat (University of Technical Education Ho Chi Minh City, Vietnam)
pp. 1-6

A Method for Optimal Kinematic Design of Five-bar Planar Parallel Manipulators

Tien Dung Le (Danang University of Technology, Vietnam); Hee-Jun Kang (University of Ulsan, Korea); Vinh Doan (The University of Danang, Vietnam)
pp. 7-11

Navigation of Networked Mobile Robot Using Behavior-based Model

Manh Duong Phung (Vietnam National University, Vietnam)
pp. 12-17

Tracking Control for Mobile Robot with Uncertain Parameters Based on Model Reference Adaptive Control

Tien Ngo Manh (Institute Of Physics & Vietnam Academy of Science and Technology, Vietnam); Minh Phan (Hanoi University of Science and Technology, Vietnam); Phuoc Nguyen Doan (Hanoi University of Science and Technology, Vietnam); Thang Phan Quoc (Hanoi University of Science and Technology, Vietnam)
pp. 18-23

TA02: Bio-Robotics and Applications

A Novel Bio-kinematic Encoder for Human Exercise Representation and Decomposition - Part 1: Indexing and Modelling

Saiyi Li (Deakin University, Australia); Terry Caelli (University of Melbourne, Australia); Mario Ferraro (Universita di Torino, Italy); Pubudu Pathirana (Deakin University, Australia)
pp. 24-29

A Novel Bio-kinematic Encoder for Human Exercise Representation and Decomposition - Part 2: Robustness and Optimisation

Saiyi Li (Deakin University, Australia); Terry Caelli (University of Melbourne, Australia); Mario Ferraro (Universita di Torino, Italy); Pubudu Pathirana (Deakin University, Australia)
pp. 30-35

A Hybrid Method for 3D Instrument Reconstruction and Tracking in Laparoscopy Surgery

Chingchun Huang (National Kaohsiung University of Applied Sciences, Taiwan); Nguyen Hung (University of Technical Education, Vietnam); Atul Kumar (IRCAD-Taiwan & AITS-Taiwan, Taiwan)
pp. 36-41

A Wearable Assistive Device for the Blind Using Tongue-Placed Electrotactile Display: Design and Verification

Thanh Huong Nguyen (Grenoble Institute of Technology, France); Thi Hue Nguyen (MICA, HUST, France); Thi-Lan Le (MICA, HUST, Vietnam); Thi-Thanh-Hai Tran (Hanoi University of Science and Technology, Vietnam); Nicolas Vuillerme (University of Grenoble, France); Tan Phu Vuong (Grenoble INP, France)
pp. 42-47

TA03: Data Mining and Natural Language Processing

A Hybrid Method for Word Segmentation with English-Vietnamese Bilingual Text

Hung Ngo (University of Information Technology, Vietnam); Dinh Dien (University of Natural Sciences, Vietnam); Werner Winiwarter (University of Vienna, Austria)
pp. 48-52

Isarn Dharma Word Segmentation

Sittichai Somsap (Khon Kaen University, Thailand); Pusadee Seresangtakul (Khon Kaen University, Thailand)
pp. 53-57

Real Time Finger Writing Recognition System for Human Computer Interaction

Vinh Hao Nguyen (HCM University of Technology, Vietnam)
pp. 58-63

Vietnamese Speech Recognition Using Dynamic Time Warping and Coefficient of Correlation

Vu Lung (University of Information Technology, Vietnam); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam)
pp. 64-67

TA04: Intelligent Control

Design and Analysis of an Integrated 3-DOF Sensor for Tracking in-Plane Motion

Hung Vu (Hanoi University of Science and Technology, Vietnam); Nhat Ha (Hanoi University of Science and Technology, Vietnam); Long Nguyen (Hanoi University of Science and Technology, Vietnam); Dzung Viet Dao (Griffith School of Engineering, Australia); Chu Hoang (Hanoi University of Science and Technology, Vietnam)
pp. 68-72

Design, Development and Implementation of a Fuzzy Logic Controller for DC-DC Buck and Boost Converter in an FPGA

Rionel Caldo (De La Salle University & Lyceum of the Philippines Laguna, Philippines); Roderick Yap (De La Salle University, Philippines)
pp. 73-78

Design of MRAS-based Adaptive Control Systems

Lanh Nguyen Van (Electronics Faculty, Thai Nguyen University of Technology, Vietnam); Cuong Nguyen Duy (Thai Nguyen University of Technology, Vietnam)
pp. 79-84

Distributed Model Predictive Control with Receding Horizon Stability Constraint

Quang Nguyen (University of Technology Sydney, Australia); Tri Tran, C. (Curtin University, Australia)
pp. 85-90

Opening Ceremony and Plenary Lecture I

Surveillance in Sensor Networks

TP01: SLAM, Sensor Fusion, and Multi-object Estimation (Invited Session)

Data Fusion in 3D Vision Using a RGB-D Data Via Switching Observation Model and Its Application to People Tracking

Du Yong Kim (University of Western Australia, Australia); Ba-Tuong Vo (Curtin University, Australia); Ba-Ngu Vo (Curtin University, Australia)
pp. 91-96

Consistency Analysis for Data Fusion: Determining When the Unknown Correlation Can Be Ignored

Ashkan Amirsadri (Australian National University & NICTA, Australia); Adrian Bishop (NICTA, Canberra Research Laboratory & Australian National University (ANU), Australia); Jon Kim (Australian National University, Australia); Jochen Trumpf (Australian National University, Australia); Lars Petersson (NICTA, Australia)
pp. 97-102

An Improved Weighting Strategy for Rao-Blackwellized Probability Hypothesis Density Simultaneous Localization and Mapping

Keith Yu Kit Leung (Advanced Mining Technology Center, Universidad de Chile, Chile); Felipe Inostroza (Universidad de Chile, Chile); Martin D Adams (University of Chile & Advanced Mining Technology Centre, Chile)
pp. 103-110

A Novel Multi-Cell Tracking Algorithm Based on Ant Colony Behavior

Qinglan Chen (Changshu Institute of Technology Changshu China, Australia); Benlian Xu (Changshu Institute of Technology, P.R. China); Mingli Lu (Changshu Institute of Technology Changshu, P.R. China)
pp. 111-115

Multi-target Track-Before-Detect Using Labeled Random Finite Set

Francesco Papi (IPSC, Joint Research Centre, European Commission, Italy); Ba-Tuong Vo (Curtin University, Australia); Mélanie Bocquel (Thales Nederland B V & University of Twente, The Netherlands); Ba-Ngu Vo (Curtin University, Australia)
pp. 116-121

Simultaneous Tracking of Multiple Particles and Sensor Position Estimation in Fluorescence Microscopy Images

Jeremie Houssineau (Heriot-Watt University, United Kingdom); Daniel Clark (Heriot Watt, United Kingdom)
pp. 122-127

TP02: Control Theory and Application I

Dependable Model Predictive Control for Reliable Constrained Systems

Tri Tran, C. (Curtin University, Australia)
pp. 128-133

Modeling and Impedance Control of a 6-DOF Haptic Teleoperation System

Vu Minh Hung (PetroVietnam University (PVU), Vietnam); Trinh Quang Trung (PetroVietnam University (PVU), Vietnam)
pp. 134-139

Gap Width Control in Electrical Discharge Machining, Using Type-2 Fuzzy Controllers

Kotler Tee (RMIT University, Australia); Reza Hoseinnezhad (RMIT University, Australia); Milan Brandt (RMIT University, Australia); John P.T. Mo (RMIT University, Australia)
pp. 140-145

Vision Based Ground Object Tracking Using AR.Drone Quadrotor

Chi-Tinh Dang (HCMC University of Technical Education, Vietnam); Hoang-The Pham (HCMC University of Technical Education, Vietnam); Thanh-Binh Pham (Institute of Applied Mechanics and Informatics, Vietnam); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam)
pp. 146-151

TE01: Identification and Estimation

DCM-Based Orientation Estimation Using Cascade of Two Adaptive Extended Kalman Filters

Vinh Hao Nguyen (HCM University of Technology, Vietnam)
pp. 152-157

CO2 Vehicular Emission Statistical Analysis with Instantaneous Speed and Acceleration as Predictor Variables

Seth Odoro (University of Technology, Sydney, Australia)
pp. 158-163

Inverse Dynamic of a N-links Manipulator Mounted on a Wheeled Mobile Robot

Chu My (Le Qui Don University, Vietnam)
pp. 164-170

Identification of a Gas Furnace Process Using WSDP Model

Tran-Hiep Nguyen (Le Quy Don Technical University, Vietnam); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam)
pp. 171-177

TE02: Control Theory and Application II

Performance Evaluation of Field Device Integration (FDI) Framework

Ravish Kumar (ABB & ABB, India); Deepaknath Tandur (ABB, India); Mallikarjun Kande (ABB, India)
pp. 178-183

APRC-based Decentralized Model Predictive Control for Parallel Splitting Systems with an Annihilation

Quang Ha (University of Technology, Sydney, Australia); That Dinh Nguyen (The University of Technology, Sydney & Vietnam Maritime University, Australia); Tri Tran, C. (Curtin University, Australia)
pp. 184-189

A Novel Semi-Automatic Control Strategy for Multi-Agent Cooperative Formation

Vu Truong (Vietnamese Academy of Science and Technology, Vietnam); Tri Tran, C. (Curtin University, Australia)
pp. 190-195

Control of Intake Manifold Pressure for Lean-Burn Motorcycle Engine

Bo-Chiuan Chen (National Taipei University of Technology, Taiwan); Yuh-Yih Wu (National Taipei University of Technology, Taiwan); Anh-Trung Tran (Hanoi University of Science and Technology, Vietnam)
pp. 196-200

Plenary Lecture II

Meta-level Target Tracking and Radar Resource Management

Plenary Lecture III

Human-Centred Intelligent Decision Support for Industrial Systems and Processes

WA01: Variable Structure Systems with Sliding Mode and their Applications (Invited Session)

The Oscillation Behaviors in Euler Discretized Terminal Sliding Mode Control Systems

Bin Wang (INRIA, Australia); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam); Bernard Brogliato (INRIA, France); Suiyang Khoo (Deakin University, Australia)
pp. 201-205

Robust Exponential Stabilization of the Pendubot in the Presence of Bounded External Disturbances Using Sliding Mode Control

That Dinh Nguyen (The University of Technology, Sydney & Vietnam Maritime University, Australia)
pp. 206-211

Adaptive Fuzzy Sliding Mode Control for Uncertain Nonlinear Underactuated Mechanical Systems

Raja Mohd Taufika Raja Ismail (Universiti Malaysia Pahang, Malaysia); That Dinh Nguyen (The University of Technology, Sydney & Vietnam Maritime University, Australia); Quang Ha (University of Technology, Sydney, Australia)
pp. 212-217

Observer-based Integral Sliding Mode Control for Sensorless PMSM Drives Using FPGA

Quang Nguyen (University of Technology Sydney, Australia); Vinh Doan (The University of Danang, Vietnam); Quang Ha (University of Technology, Sydney, Australia); That Dinh Nguyen (The University of Technology, Sydney & Vietnam Maritime University, Australia)
pp. 218-223

WA02: Computational Methods and Applications

Doppler Radar in Respiratory Monitoring: Detection and Analysis

Yee Siong Lee (Deakin University, Australia); Pubudu Pathirana (Deakin University, Australia); Terry Caelli (University of Melbourne, Australia); Rob Evans (The University of Melbourne, Australia)
pp. 224-228

Consensus Building Based on Linear Solvable Process in Transferable Utility Game

Koji Okuhara (Graduate School of Information Science and Technology, Osaka University, Japan); Junko Shibata (Kobe Gakuin University, Japan); Domoto Eri (Hiroshima University of Economics, Japan); Nobuyuki Ueno (Prefectural University of Hiroshima, Japan)
pp. 229-232

Cost Optimal Operation of Thermal Energy Storage System with Real-Time Prices

Toru Kashima (Azbil Corporation, Japan); Stephen Boyd (Stanford University, USA)
pp. 233-237

New Trends and Future Challenges for Wind Turbines Condition Monitoring

Pierre Tchakoua (Université du Québec à Chicoutimi & Université du Québec en Abitibi-Témiscamingue, Canada); René Wamkeue (Université du Québec en Abitibi-Témiscamingue, Canada); Fouad Slaoui-Hasnaoui (Université du Québec en Abitibi-Témiscamingue, Canada); Tommy Andy Tameghe (Université du Québec à Chicoutimi, Canada); Gabriel Ekemb (Université du Québec à Chicoutimi, Chicoutimi, Canada)
pp. 238-245

WP01: Signal and Image Processing

An Effective Fusion Scheme of Spatio-Temporal Features for Human Action Recognition in RGB-D Video

Quang D. Tran (University of Science, VNU-HCMC, Vietnam); Ngoc Ly (University of Science, Vietnam)
pp. 246-251

Sound Source Localization for Subband-based Two Speech Separation in Room Environment

Hai Quang Hong Dam (University of Information Technology - Ho Chi Minh city, Vietnam); Nordholm Sven (Curtin University of Technology, Australia)
pp. 252-256

Smart Teddy Bear - A Vision-based Story Teller

Duc-Minh Pham (Advanced Program in Computer Science, Faculty of Information Technology, Vietnam); Trong-Nhan Dam-Nguyen (Advanced Program in Computer Science, Faculty of Information Technology, Vietnam); Phuc-Thinh Nguyen-Vo (Advanced Program in Computer Science, Faculty of Information Technology, Vietnam); Minh-Triet Tran (University of Science, VNU-HCM, Vietnam)
pp. 257-262

An Adaptive Low-Complexity Coherence-Based Beamformer

Shoufeng Lin (Curtin University, Australia); Nordholm Sven (Curtin University of Technology, Australia); Dam Hai Huyen (Curtin University, Australia); Pei Chee Yong (Curtin University, Australia)
pp. 263-266

Fast Reconstruction of Corrupted Images and Videos by Radial Basis Functions

Vaclav Skala (University of West Bohemia, Czech Republic)
pp. 267-271

WP02: Motion Control Systems

Design of MRAS Based Control System for Load Sharing of Two DC Motors with a Common Stiff Shaft

Cuong Nguyen (Thai Nguyen University of Technology, Vietnam); Horst Puta (The Ilmenau University of Technology, Germany)
pp. 272-277

FPGA-Realization of Fuzzy Speed Controller for PMSM Drives Without Position Sensor

Vu Quynh Nguyen (Lac Hong University, Vietnam); Ying-Shieh Kung (Southern Taiwan University, Taiwan)
pp. 278-282

Quasi-continuous Implementation of Structural Nonlinear Controller Based on Direct-decoupling for Permanent Magnet Synchronous Motor

Pham Thanh (Vietnam Maritime University, Vietnam)
pp. 283-288

A Study on Fuzzy Based Controllers Design for Depth Control of a 3-Joint Carangiform Fish Robot

Quan Tuong Vo (Ho Chi Minh City, University of Technology, Ho Chi Minh City, Viet Nam, Vietnam)
pp. 289-294

WP03: Workshop on Intelligent Systems (IWIS)

A Protocol for Secure Remote Update of Run-time Partially Reconfigurable Systems Based on FPGA

Tran Thanh (Ha Noi University of Science and Technology, Vietnam); Hoang Vu Tran (Ha Noi University of Science and Technology, Vietnam); Pham Nam (HUST, Vietnam); Nguyen Cuong (Da Nang University of Technology, Vietnam)
pp. 295-299

Performance Evaluation of IEEE 802.15.4 Standard for Low Data Rate Ad Hoc Wireless Sensor Networks

Muhamad S. Iqbal (Brunel University, United Kingdom); Hamed Saffa Al-Raweshidy (University of Brunel, United Kingdom)
pp. 300-304

Real Time Wireless Sensor Network for Building Automation Applications: A Simulation Study and Practical Implementation

Minh-Thanh Vo (International University, Vietnam); Tien Truong Vo (International University, HCMC VNU, Vietnam); Tuan-Duc Nguyen (International University, HCMC VNU, Vietnam); Thong Le Chi (Ho Chi Minh University of Technology, Vietnam)
pp. 305-310

Multivariate Cube for Visualization of Weather Data

Hong Nguyen (University of Information Technology, Vietnam); Trung Tran (University of Oklahoma, USA); Phuoc Vinh Tran (University of Information Technology, Vietnam); Hung Dang (University of Information Technology, Vietnam)
pp. 311-316

Global Path Planning for Autonomous Robots Using Modified Visibility-graph

Nguyet Tran (University of Information Technology, Vietnam); Duy-Tung Nguyen (Institute of Applied Mechanics and Informatics, Vietnam); Vu Lung (University of Information Technology, Vietnam); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam)
pp. 317-321

WP04: Sliding Mode Control Systems

Robust Adaptive Control of Robots Using Neural Network and Sliding Mode Control

Minh Phan (Hanoi University of Science and Technology, Vietnam); Nguyen Thai (Hanoi University of Science and Technology, Vietnam); Son Minh Hoang (Hanoi University of Science and Technology, Vietnam); Quyet Ho (Hanoi University of Science and Technology, Vietnam); Dan Nguyen (Hanoi University of Science and Technology, Vietnam)
pp. 322-327

Torque Vectoring for Rear Axle Using Adaptive Sliding Mode Control

Dang Viet Thang Truong (Hanoi University of Science and Technology, Vietnam)
pp. 328-333

Hybrid Terminal Sliding Mode Control and Quadrotor's Vision Based Ground Object Tracking

Hoang-The Pham (HCMC University of Technical Education, Vietnam); Chi-Tinh Dang (HCMC University of Technical Education, Vietnam); Thanh-Binh Pham (Institute of Applied Mechanics and Informatics, Vietnam); Vu Truong (Vietnamese Academy of Science and Technology, Vietnam)
pp. 334-340

Second-order Sliding Mode Control of Three-dimensional Overhead Cranes with Uncertainties

Le Tuan (Vietnam Maritime University, Vietnam)
pp. 341-346

WE01: Human-Computer Interaction

TripNote: A Useful Cloud-based Trip Diary System

Hsien-Tang Lin (Tahwa University of Science and Technology, Taiwan)
pp. 347-352

Representing Uncertain Time on Space-time Cube for Bus Movement

Trung Tran (University of Oklahoma, USA); Phuoc Vinh Tran (University of Information Technology, Vietnam); Tha Bui (University of Information Technology, Vietnam)
pp. 353-357

Motorbike Theft Detection Based on Object Detection and Human Activity Recognition

Dung Mai (University of Information Technology, Vietnam)
pp. 358-362

Towards Reward-based Spatial Crowdsourcing

Hung Dang (University of Information Technology, Vietnam); Kim-Tuyen Cao (UIT-HCMVNU, Vietnam)
pp. 363-368