



Department of Process Control
Faculty of Mechanical Engineering and Robotics
AGH - University of Science and Technology

**20th INTERNATIONAL CARPATHIAN
CONTROL CONFERENCE
PROGRAMME**

Co-Organizers:

Institute of Control and Informatization of Production Processes
Faculty of Mining, Ecology, Process Control and Geotechnology
Technical University of Košice
SLOVAK REPUBLIC

Department of Control Systems and Instrumentation
Faculty of Mechanical Engineering
VŠB -Technical University of Ostrava
CZECH REPUBLIC

Department of Automation and Communication Technology
University of Miskolc
HUNGARY

Department of Automatic Control
Faculty of Automation, Computers and Electronics
University of Craiova
ROMANIA

Kraków - Wieliczka, Poland
May, 26-29, 2019





International Carpathian Control Conference - Wieliczka 2019

| Time | Sunday, May 26 th | Monday, May 27 th | Tuesday, May 28 th | Wednesday, May 29 th |
|-------------------------------------|--|--|--|---------------------------------|
| 7 ⁰⁰ - 8 ⁰⁰ | | Breakfast 7:00 - 9:00 | Breakfast 7:00 - 9:00 | Breakfast 7:00 - 9:00 |
| 8 ⁰⁰ - 9 ⁰⁰ | | | | |
| 9 ⁰⁰ - 10 ⁰⁰ | | Session 3, 4, 5 9:00 - 11:00 | Session 9, 10 9:00 - 11:00 | |
| 10 ⁰⁰ - 11 ⁰⁰ | | | | |
| 11 ⁰⁰ - 12 ⁰⁰ | | Coffee Break 11:00 - 11:20 | Coffee Break 11:00 - 11:20 | |
| 12 ⁰⁰ - 13 ⁰⁰ | | Session 6, 7, 8 11:20 - 13:00 | Session 11, 12 11:20 - 13:00 | |
| 13 ⁰⁰ - 14 ⁰⁰ | Lunch 13:00 - 14:30 | Lunch 13:00 - 14:30 | Lunch 13:00 - 14:30 | |
| 14 ⁰⁰ - 15 ⁰⁰ | Registration 12:00 - 16:00 | | | |
| 15 ⁰⁰ - 16 ⁰⁰ | Opening Ceremony 15:00 - 16:00 | Scientific Committee Meeting 15:00 - 16:30 | Poster Session 15:00 - 16:30 | |
| 16 ⁰⁰ - 17 ⁰⁰ | Coffee Break 16:00 - 16:15 | | | |
| 17 ⁰⁰ - 18 ⁰⁰ | Session 1, 2 16:15 - 18:15 | Excursion 16:40 - 19:30 | Poster Session 17:00 - 18:30 | |
| 18 ⁰⁰ - 19 ⁰⁰ | | | | |
| 19 ⁰⁰ - 20 ⁰⁰ | | | | |
| 20 ⁰⁰ - 21 ⁰⁰ | Dinner - Welcome Party 20:00 - Hotel Turówka | Dinner - Grill 20:00 - Hotel Turówka | Dinner - 19:30 - 21:00 | |

Sunday – 26.05.2019

12:00 – 16:00 Registration

13:00 – 14.30 Lunch

15:00 – 16:00 Opening Ceremony

Plenary lecture

Marek PAWELCZYK

Reduction of Device Noise by Controlling Vibration of its Casing

16:00 – 16:15 Coffee Break

16:15 – 18:15 **SESSION 1**

(Chairmen: *József VÁSÁRHELYI, Marek PAWELCZYK*)

Dániel DRÓTOS and József VÁSÁRHELYI

Interrupt Driven Parallel Processing

Karol KOSTUR

Control System Design for a Walking Beam Furnace

Antonín VITECEK and Miluse VITECKOVA

Series 2DOF PID Controller for Integrating Plants with Time Delay

Nan-Sheng HUANG, Jan-Matthias BRAUN, Jørgen Christian LARSEN and Poramate MANOONPONG

Teaching Hardware Implementation of Neural Networks using High-Level Synthesis in Less Than Four Hours for Engineering Education of Intelligent Embedded Computing

Elżbieta AUGUSTYN, Marek S. KOZIEN and Daniel ZIEMIAŃSKI

Experimental Verification of the Method of Single-Modal Reduction of Torsional Vibrations of a Beam by Piezoelectric Elements

Andrzej BAKOWSKI, Vladimír DEKÝŠ, Leszek RADZISZEWSKI and Paweł ŚWIETLIK

Frequency Analysis of Urban Traffic Noise

SESSION 2

(Chairmen: *Jiří TŮMA, Dusan KROKAVEC*)

Jiří TŮMA

Longitudinal Vibration of the Linear Piezoactuators

Janusz GOLDASZ and Bogdan SAPIŃSKI

Influence of Temperature on the MR Squeeze Mode Damper Output

Dejan IVEZIC, Milos TANASIJEVIC, Predrag JOVANCIC and Radisa DJURIC

A Fuzzy Expert Model for Availability Evaluation

Ho Pyeong LEE

Robust Control of a Two-Axis Gimbaled Seeker Using Loop Shaping Design Procedure

Dusan KROKAVEC and Anna FILASOVA

Fault Detection Using Consensus-Based Linear Distributed Kalman Filtering

Olga ANDRIANOVA and Alexey BELOV

On Robust Performance Analysis of Linear Systems with Polytopic Uncertainties Affected by Random Disturbances

20:00 – 23:00 Welcome party

Monday – 27.05.2019

07:00 – 09:00 Breakfast

09:00 – 11:00 **SESSION 3**
(Chairmen: *Ivo PETRAS, Miluse VITECKOVA*)

Ivo PETRAS

Tuning of the Non-linear Fractional-order Controller

Katarzyna ADAMIAK

Discrete Time Trajectory Following Sliding Mode Control Strategy

Piotr OSTALCZYK

Analysis of a Closed Loop System with DC Micro-motor Electrical Driver with Propeller and Variable-fractional Order PID Controller

Judit Mária PINTER and Márton L. KISS

Determination and Measurement of Parameters Affecting Indoor Comfort

Andrius NEMEIKŠIS and Vitālijs OSADČUKS

Development of Fuzzy Blocks Intended for Agents Constituting Intelligent System of Mobile Robot Movement Planning

Mihai LUNGU, Olfa BOUBAKER and Romulus LUNGU

Multiple Observer with Applications to Airplane Landing in Lateral-Directional Plane

SESSION 4

(Chairmen: *Radim FARANA, Tamás KOVÁCSHÁZY*)

Tomáš HANZELY, Radim FARANA and Cyril KLIMEŠ

System for Automating the Search for Coloured Cells in Images

Jan GEBAUER, Petr PODESVA, David FOJTIK and Miroslav MAHDAL

The Welding Current and Voltage Smart Sensor

Petr DOLEZEL, Jan PIDANIC, Tomas ZALABSKY and Miroslav DVORAK

Bin Picking Success Rate Depending on Sensor Sensitivity

Lukasz JASTRZĘBSKI and Arkadiusz KOZIEL

Measurement-control System Based on the CORTEX-M7 Core Microcontroller for Testing Energy Harvesting Structures

Dénes Nimród KUTASI

Process Control with IIoT Capabilities of the Hollow Cathode Plasma Nitriding

Adrian PAWEŁEK and Piotr LICHOTA

Arrival Air Traffic Separations Assessment Using Maximum Likelihood Estimation and Fisher Information Matrix

SESSION 5

Dynamics and control of structures

(Chairmen: *Paweł OLEJNIK, Jarosław KONIECZNY*)

Paweł OLEJNIK and Jan AWREJCWICZ

A Mechatronic Experimental System for Control of Fluid Level in LabVIEW

Waldemar RĄCZKA, Jarosław KONIECZNY and Marek SIBIELAK

The use of SMA in Smart Vibrating Systems

Jarosław RZEPECKI, Anna CHRAPONSKA, Krzysztof MAZUR, Stanisław WRONA and Marek PAWEŁCZYK

Semi-active Reduction of Device Casing Vibration Using a set of Piezoelectric Elements

Sara El HERAIKI, Buse TACAL and Levent UCUN

Robust H_∞ Controller Design for Active Vibration Suppression with Input Constraints

Dorin SENDRESCU, Dan POPESCU, Emil PETRE, Dan SELISTEANU and Dan CHINTESCU

Iterative Learning Control for Active Suspension System of a Railway Vehicle

Marek GAJOWY

Operational Properties of Vibratory Conveyors of the Anti-resonance Type

11:00 – 11:20 Coffee Break

11:20 – 13:00 **SESSION 6**
(Chairmen: *Paolo **MERCORELLI**, Andrzej **URBANIAK***)

*Mateusz **PIETRALA** and Marek **JASKUŁA***

IAE Minimization in Sliding Mode Control for Second Order Systems with Velocity Constraint

*Tanja **ZWARGER** and Paolo **MERCORELLI***

Combining SMC and MTPA Using an EKF to Estimate Parameters and States of an Interior PMSM

*Radu-Lucian **CONSTANTINESCU**, Monica **ROMAN**, Bogdan **POPA** and Dan **SELISTEANU***

An Improved Numerical Method for the Simulation of Nonlinear Systems

*Frank E. **SCHNEIDER** and Dennis **WILDERMUTH***

Real-World Robotic Competitions for Radiological and Nuclear Inspection Tasks

*Yanli **HUANG**, Xiao **LIANG**, Fang **GENG** and Sen **MU***

Load Balancing System based on Virtual Points in High-density Wireless Local Area Networks

*Andrzej **URBANIAK**, Przemysław **ZAKRZEWSKI**, Ariel **ANTONOWICZ** and Alicja **BALUT***

Algorithm for Early Warning System in Water Contamination Network

SESSION 7
(Chairmen: *Renata **WAGNEROVÁ**, Bogdan **POPA***)

*Martin **JUREK** and Renata **WAGNEROVÁ***

Mathematical Model of Real CNC Machine

*Jakub **GAJ**, Bogdan **WALEK**, Radim **FARANA** and Martin **KOTYRBA***

Comparison of a Saturation Flow Method and an Expert System to Optimise Traffic Crossroads Control

*Samad **DADVANDIPOUR** and Mohammad **ALSHARIF***

On the Analysis and Tool Development of the Long Term Evolution (LTE) Cell Planning

*Dariusz **GRZYBEK**, Dariusz **KATA**, Bogdan **SAPIŃSKI** and Wojciech **SIKORA***

Impact of PZT Layer Properties in a Cantilever Beam on Energy Harvesting Performance

*Joanna **SZULCZYK** and Piotr **LICHOTA***

Evolutionary Algorithm Based Multisine Inputs

*Wojciech **SIKORA**, Dariusz **GRZYBEK**, Piotr **MICEK** and Dariusz **KATA***

Impact of a Carrying Layer Properties on Stress in a Multilayer Piezoelectric Harvester

SESSION 8
Dynamics and control of structures
(Chairmen: *Janusz **KOWAL**, Marek **SIBIELAK***)

*Krzysztof J. **KALIŃSKI**, Marek A. **GALEWSKI**, Michał R. **MAZUR** and Natalia **MORAWSKA***

Minimization of Vibrations During Milling of Flexible Structures Using Mechatronic Design Techniques

*Marek **SIBIELAK**, Waldemar **RĄCZKA** and Jarosław **KONIECZNY***

Modelling and Control of a Full Vehicle Active Suspension System

*Magdalena **PIWOWARCZYK** and Jarosław **KONIECZNY***

Experimental Research of the Controllable Suspension Strut

*Adam **SMOTER** and Marek **SIBIELAK***

Experimental and numerical investigation of the active double wishbone suspension system

*Mateusz **KOZIOŁ** and Piotr **CUPIAL***

Experimental Investigation of a Rotor Vibration by Using Signals from Shaft Mounted Piezoelectric Patches

- 13:00 – 14:30 Lunch
- 15:00 – 16:30 Scientific Committee Meeting
- 16:40 – 19:30 Excursion – “Wieliczka” Salt Mine
- 20:00 – 22:00 Dinner – Grill

Tuesday – 28.05.2019

- 07:00 – 09:00 Breakfast

- 09:00 – 11:00 **SESSION 9**
(Chairmen: *Dan POPESCU, Antonín VITECEK*)

Bogdan POPA, Dan POPESCU, Monica ROMAN and Radu Lucian CONSTANTINESCU
Optimizing Algorithms for Low CPU Usage in Different Scenarios

András PALKÓ and László SUJBERT

Time and Frequency Domain Description of Gilbert-Elliott Data Loss Models

João Marcos Simões RIBEIRO, Mathaus FERREIRA DA SILVA, Murillo FERREIRA DOS SANTOS, Vinicius Ferreira VIDAL, Leonardo HONORIO, Luiz Augusto ZILLMANN SILVA, Henrique BORGES REZENDE, Accacio Ferreira Dos Santos NETO, Paolo MERCORELLI and Antônio ALENCAR NOGUEIRA PANCOTI

Ant Colony Optimization Algorithm and Artificial Immune System Applied to a Robot Route

Jan Thore LASSEN and Paolo MERCORELLI

Self-tuning of a Kalman Filter Applied in a DC Drive and in a Kalman-based Sensor

Paweł MARTYNOWICZ and Maciej ROSÓŁ

Wind Turbine Tower-Nacelle System with MR Tuned Vibration Absorber: Modelling, Test Rig, and Identification

Maciej ROSÓŁ and Paweł MARTYNOWICZ

Identification of the Wind Turbine Model with MR Damper Based Tuned Vibration Absorber

- SESSION 10**
(Chairmen: *Karol KOSTUR, Emil PETRE*)

Alberto MANERO CONTRERAS and Chingiz HAJIYEV

Comparison of Conventional and Robust Adaptive Kalman Filters Based Integrated Altimeters

Przemysław IGNACIUK and Michał MORAWSKI

Discrete Sliding-Mode Control of Remote Peer in MPTCP Streaming Applications

Paweł DRAĞ and Krystyn STYCZEŃ

A New Procedure for Solving Differential-algebraic Equations

Emil PETRE and Vladimir RASVAN

Controlling Systems of Conservation Laws - The Case of the Open Canals

Radda IUREVA, Alexey BELOV, Alexey MARGUN and Artem KREMLEV

Electric Drive Attack Detection based on State Observers

Eszter VIRÁGH and Bálint KISS

Grobman-Hartman Theorem for Control Systems Containing Parameter Uncertainties

- 11:00 – 11:20 Coffee Break

11:20 – 13:20

SESSION 11

(Chairmen: *Andrzej KOT, Waldemar RĄCZKA*)

Nirvana POPESCU, Mircea IVANESCU, Mircea NITULESCU, Decebal POPESCU and Cristian VLADU

Fuzzy Algorithms for the EEG Signal Evaluation

Barbara KUC, Igor TYLMAN, Karol HARABURDA, Adam BUCZYŁOWSKI, Paweł Rólkowski, Kazimierz DZIERŻEK, Paweł FREJDA and Jarosław SIDUN

The Concept of POSTURON Braces for Patients with a Damaged Labyrinth

Viorel STOIAN, Ionel Cristian VLADU, Cristina PANA, Ileana VLADU and Daniela PATRAȘCU

Locomotion Solution for Stair Climbing Wheelchair with ER Fluid Based Control

Florin MANTA, Dorian COJOCARU, Ionel Cristian VLADU, Andrei DRAGOMIR and Alexandru MARINIUC

Wheelchair Control by Head Motion Using a Non-contact Method in Relation to the Patient

Dorota MARSZALIK and Waldemar RĄCZKA

Surgical Tool Trajectory Optimization in Brain Tumour Resection

Narek UNANYAN and Alexey BELOV

Signal-Based Approach to EMG-Sensor Fault Detection in Upper Limb Prosthetics

SESSION 12

(Chairmen: *Vojtech VESELY, Andrzej BARTOSZEWICZ*)

Marlena DRĄG

The Predictive Differential-algebraic Model for Nano-fibrous Webs Production

Dusan KROKAVEC and Anna FILASOVA

H2 Norm Principle in Order Reduction of Discrete-time Systems

Dusan KROKAVEC and Anna FILASOVA

State Constraints in Discrete-time Positive System Control

Constantin Florin CARUNTU

A Less Conservative Condition for Flexible Control Lyapunov Functions used in Networked Predictive Control Systems

Karla SLADKÁ and Miluse VITECKOVA

2DOF PI Controller Tuning for Integrating Plants with the Setting of Setpoint Weight

Alžběta HORNYCHOVÁ and Milan HOFREITER

Shifting Method for Relay Feedback Identification Implemented in PLC Tecomat

Mateusz GAWLIK and Wiesław WSZOLEK

Intonation Accuracy Parameter as the Pointer of Voice Quality and Experience Level of Singers

13:00 – 14:30 Lunch

15:00 – 16:30

Poster Session

(Chairmen: *Agata NAWROCKA, Marek LACIAK*)

Zoltán GYENES and Emese Gincsiné SZÁDECZKY-KARDOSS

Traffic Regulation Velocity Obstacles Method

Kanstantsin MIATLIUK, Maciej PIETRZAK and Anders Glent BUCH

Controlling an Industrial Robotic System Based on Received Visual Information

Stanislav PALÚCH and Tomáš MAJER

Computation of Fair Crew Schedules in Regular Bus Transport

Marek KVET

Fast Approximate Algorithm for Robust Emergency System Design

Dorin SENDRESCU and Gheorghe BUJGOI

Iterative Learning Control for a Rotary Flexible Joint Experiment

Marcin APOSTOŁ, Grzegorz KACZMARCZYK and Kamil TKACZYK

SCARA Robot Control based on Raspberry Pi

Jan CVEJN and Milan ZAPLETAL

Feedback Control of Robot Manipulators by Using Gravity and Inertial Effects Compensation

Lidia Cristina **BĂZĂVAN**, *Dan* **ANDRITOIU**, *Horatiu* **ROIBU** and *Nicu George* **BIZDOACA**
Cheap Automated Guided Vehicles (CAGV) – Concept and Experiments

Bogdan **POPA**, *Monica* **ROMAN** and *Radu Lucian* **CONSTANTINESCU**
Fast Fourier Processing and Real-time Transformation System for a Dynamic Vibration Signal

Ádám Erik **HOLLÓS** and *Tamás* **KOVÁCSHÁZY**
Measurement System for the Performance Assessment of GNSS Receivers

Murillo **FERREIRA DOS SANTOS**, *Leonardo* **HONORIO**, *Experry* **BARROS COSTA**,
MATHAUS FERREIRA DA SILVA, *Vinicius Ferreira* **VIDAL**, *Accacio Ferreira Dos Santos* **NETO**,
Henrique **BORGES REZENDE**, *Paolo* **MERCORELLI** and *Antônio* **ALENCAR NOGUEIRA PANCOTI**

Detection Time Analysis of Propulsion System Fault Effects in a Multicopter
Lenka **LANDRYOVA** and *Geena* **ALEXANDER GEORGE**
Interaction Between Human and AI Systems: When Automated Systems Move Towards Autonomous

Michał **WIRASZKA**, *Michał* **WIERZCHOWSKI** and *Mikołaj* **WOJCIUK**
State-dependent Fractional-order PID Control Strategy for a Nonlinear Water Tank System

Andrzej **BAKOWSKI**
Validation Of Cnossos-EU Urban Traffic Noise Model

Alexandru-Nicolae **TUDOSIE**
Aircraft Single-Jet Engine with Hydro-Mechanical Thrust Augmentation System Based on Coolant Injection into the Compressor

Jan **SIKORA**, *David* **FOJTÍK**, *Milan* **MIHOLA**, *Petr* **PODEŠVA** and *Jan* **GEBAUER**
Preparation of 3D Model of Loaded Truck for Timber Load Analysis

István **BODNÁR**, *Dávid* **FARAGÓ** and *György* **DOJCSÁK**
Simulation of Photovoltaic Power Plant

Leszek **CEDRO** and *Krzysztof* **WIECZORKOWSKI**
Differential Filters in an Adaptive Control System

Ewa **PAWLUSZEWICZ** and *Olga* **TSEKHAN**
Slow-fast Decomposition of Singularly Perturbed System with Delay on Time Scales

Tomáš **MAJER** and *Stanislav* **PALÚCH**
Creating of Detrimental Scenarios for a Robust Rescue System

Ondřej **MACH**, *Lukáš* **KRČMÁŘ** and *Josef* **ČERNOHORSKÝ**
Laser Guidance System for Automated Material Distribution in the Industrial Environment

Szymon **TOFIL**, *Krzysztof* **MULCZYK** and *Grzegorz* **WITKOWSKI**
Automatic Temperature Control System in the Process of Laser Constitution of Adhesive Joints for Plastics with Different Optical Properties

Daniel Henrique **CALADO SILVA**, *Murillo* **FERREIRA DOS SANTOS**, *Mathaus FERREIRA DA SILVA*,
Accacio Ferreira Dos Santos **NETO** and *Paolo* **MERCORELLI**
Design of Controllers Applied to Autonomous Unmanned Aerial Vehicles Using Software In The Loop

Kanstantsin **MIATLIUK**, *Adam* **WOLNIAKOWSKI**, *Moises* **DIAZ**, *Miguel A.* **FERRER** and *José Juan* **QUINTANA**

Universal Robot Employment to Mimic Human Writing
Florina-Luminita **BESNEA**, *Ionut-Cristian* **RESCEANU**, *Stefan-Irinel* **CISMARU**, *Ion-Eugen* **GANEA**,
Ionut-Laurentiu **PISTRITU** and *Nicu-George* **BIZDOACA**

Experiments Regarding Implementation of a Virtual Training Environment for Automotive Industry

Dušan **NEMEC**, *Rastislav* **PIRNÍK** and *Marián* **HRUBOŠ**
Detection of the Road Defects in the Tunnel Area

Horatiu **ROIBU**, *Lidia Cristina* **BAZAVAN**, *Dan* **ANDRITOIU** and *Nicu George* **BIZDOACA**
Cooperative Cheap Automated Guided Vehicles

Petr **PODESVA** and *David* **FOJTIK**
The Algorithm for Evaluation of Data for Calibration of the Triangulation Laser Scanner

Florin **STINGA** and *Daniela* **DANCIU**

A Disturbance Observer-Based Control of Drilling Vibrations
Vojtech VESELY and Ladislav KÖRÖSI
 Robust Gain Scheduled PI-D Controller Design for Descriptor System
Pavel SMUTNÝ, Marek BABIUCH and Petr FOLTYNEK
 A Review of the Virtual Reality Applications in Education and Training
Nabeel Shaway Shyaa AL – ATWAN and Mircea NITULESCU
 Wireless Control System for an Intelligent Home
Adela PUSCASIU, Alexadra FANCA, Dan-Ioan GOTA and Honoriu VALEAN
 Cooperative Traffic Control Based on Greenhouse Gases Footprint Minimization
Ryszard DINDORF and Piotr WOŚ
 Force and Position Control of the Integrated Electro-hydraulic Servo-drive
Piotr WOŚ and Ryszard DINDORF
 Nonlinear Modeling and Parameter Identification for Electro-hydraulic Servo System
Ernő HORVÁTH, Claudiu POZNA, Csaba HAJDU and Áron BALLAGI
 Range Sensor-based Occupancy Grid Mapping with Signatures
Igor TYLMAN, Robert GRABOWY and Maciej RECKO
 Thrust and Ignition Control of Valveless Pulse Jet Engine
Laszlo ARVAI and Szilvia HOMOLYA
 Filtering and Fingerprint Matching Methods for Wi-Fi Radio Map Based Indoor
 Localization
Petr FOLTYNEK, Marek BABIUCH and Pavel SMUTNÝ
 Using the ESP32 Microcontroller for Data Processing
Tomáš HUSZANÍK, Ján TURÁN and Luboš OVSENÍK
 On Mitigation of Four-Wave Mixing in High Capacity Ultra-DWDM System
Lukas HUBKA
 Electric Cars in the Czech Republic – The Analysis of CO₂ Emissions Reduction
Attila Károly KANÁL and Tamás KOVÁCSHÁZY
 IoT Solution for Assessing the Indoor Air Quality of Educational Facilities
Sona SEDIVA and Radek ŠTOHL
 Uncertainty Budget for Calibration of Platinum Resistance Thermometer
Štefan PEŠKO and Zuzana BORČINOVÁ
 A Modified Micro-genetic Algorithm for Robust Emergency System Designing
Dominik SIEROCIUK and Michal WIRASZKA
 Variable Order PI Control Algorithm with Order Scheduled According to the Control
 Error
Danica ROSINOVA and Maria HYPIUSOVA
 Robust LMI Based Control of Magnetic Levitation Laboratory Plant

17:00 – 18:30

Poster Session

(Chairmen: *Leszek CEDRO, Jana POCSOVA*)

József DUDA

Parametric Optimization of a Second Order Time Delay System with a PD-Controller

Jan SIKORA, David FOJTÍK, Milan MIHOLA and Jiří CZEBE

Storage Kind Recognition of Truck's Timber Load

Jiří CZEBE, Pavel ŠURÁNEK, Jiří TŮMA and David FOJTÍK

Finding Similarities in Laser Micrometers Scanned Data Using Cross-covariance

Dávid FARAGÓ, István BODNÁR, Péter BENCS, Dániel KOÓS, Patrik ISKI and Ádám SKRIBANEK

Laboratory Measurements and Numeric Simulation of a Solar Cell

István BODNÁR, Bálint CSEHI, Botond SUKÁLY and Ágoston Csaba GÁSPÁR

Examination of Voltage Drop of the Solar Panel as a Function of Environmental Factors

Václav PAVELKA and Pavel ŠURÁNEK

Shock Response Spectrum Calculation from Container Placing

Radek GURÁŠ and Miroslav MAHDAL

Parking House Action Subsystem Control

Alexandru-Nicolae TUDOSIE

Coolant Injection System for Aircraft Engines' Compressor

Tomáš PAWLENKA and Jaromír ŠKUTA

Electronic Steering With Force Feedback
Martin JUREK and Renata WAGNEROVÁ
Frequency Filtering of Source Images for Laser Engravers
Michał KEKEZ, Leszek RADZISZEWSKI and Andrzej BĄKOWSKI
Application of Selected AI Models to Reconstruction of Noise Levels at Thoroughfare
During Selected Year
Ondrej PEKTOR, Bogdan WALEK and Ivo MARTINIK
Extending the Takagi-Sugeno Hierarchical Expert System for the System for Evaluating
Competencies
Miluse VITECKOVA and Antonín VITECEK
Standard, Parallel and Series 2DOF PID Controllers
Michał OSTASZEWSKI, Kazimierz DZIERŻEK and Damian ŁAPIŃSKI
Cascade Classifier as a Tool for Quick Camera Calibration
*Paweł STRASZYŃSKI, Jakub CZYGIER, Rafał WARAKSA, Michał OLSZYŃSKI and
Maciej REĆKO*
PID Controller for Velocity Control and Skid Prevention for a Six-wheeled Rover
*Aneta LUKOWSKA, Piotr TOMASZUK, Kazimierz DZIERŻEK and Łukasz
MAGNUSZEWSKI*
Soil Sampling Mobile Platform for Agriculture 4.0
Tomáš PAWLENKA, Jiří KULHÁNEK, Petr TOMČÍK and Rostislav ZAPLETAL
Design of Digital CAN Based Car Dashboard Unit
Józef CIOŚMAK
Transmultiplexing as a Method of Protecting Digital Data Against Unauthorized
Reading, in IoT Systems in Particular
Jaroslav JANACEK
System Optimization or Competition of Providers in Emergency Service System
Reengineering
Gabriel HARJA and Ioan NASCU
Control of an Activated Sludge Wastewater Treatment Process based on a Calibrated
and Modified BSM1 Model
Laszlo ARVAI and Gergely DOBOS
On Demand Vision-based Indoor Localization
Stella HREHOVA
Description of Using Different Software Tools to Analyze the Selected Process
Szymon GORZKOWSKI and Grzegorz SARWAS
Exploitation of EMG Signals for Video Game Control
Igor HALENÁR, Martin JUHÁS, Bohuslava JUHÁSOVÁ and Dmitrii BORKIN
Virtualization of Production Using Digital Twin Technology
Patrik FLEGNER, Jan KACUR, Jan TERPAK, Marek LACIAK and Milan DURDAN
An Advanced Method of Recognizing the State of the Technological Process in
Technical Diagnostics
Jan TERPAK, Patrik FLEGNER, Jan KACUR, Marek LACIAK and Milan DURDAN
Utilization of the Mathematical Model of the Converter Process for the Sensitivity
Analysis
Piotr WASILEWSKI and Justyna TOLSTOJ-SIENKIEWICZ
Modeling and Simulation of Parallel Quadruped Robot
Pavel VAZAN, Zuzana CERVENANSKA, Janette KOTIANOVA and Gabriela KRIZANOVA
The Impact of Selected Priority Rules on Production Goals
Łukasz KOTARSKI, Maciej WYSOCKI, Rafał GRĄDZKI and Paulina ŁAPIŃSKA
Research of Magnetic System Applied in Autonomous MegaSumo Robots
Marcin DZIUBEK, Marek KLIMOWICZ and Rafał GRĄDZKI
Evaluation of Temperature Changes of a Loaded DC Motors in Autonomous Mobile
Robots
Jana POCŠOVA, Andrea MOJZISOVA and Michal TAKAC
Animation of Mathematics' Objects in JavaScript
Marek LACIAK, Diana RÁŠKAYOVÁ, Patrik FLEGNER, Ján KAČUR and Milan DURDÁN
Automated System for Optimizing Input Parameters of the UCG Process
Michal MÁRTON, Ľuboš OVSEŇÍK, Ján TURÁN, Michal ŠPES and Jakub URBANSKÝ
Comparison of Microstrip Patch Antennas with Different Materials Operating on
2.46GHz for FSO/RF Hybrid System

Piotr MICEK and Dariusz GRZYBEK

Experimental Investigation on an Energy Storage in a Piezoelectric Harvester for a Rotating Shaft

Jan KACUR, Marek LACIAK, Patrik FLEGNER, Jan TERPAK and Milan DURDAN

Application of Support Vector Regression for Data-driven Modeling of Melt Temperature and Carbon Content in LD Converter

Marius MARIAN, Dan POPESCU, Adelin CUSMAN and Dragos IONICA

Electronic Signature Support for Industrial Control Systems

Krzysztof PYTEL, Wiktor HUDY, Stanisław GUMUŁA, Malgorzata PIASKOWSKA - SILARSKA, Mykhailo LOBUR and Mykhailo MELNYK

Application of Evolutionary Algorithms to Analysis the Possibilities of Solar Energy Use

Constantin MARIN, Dan POPESCU, Emil PETRE and Dan SELISTEANU

Distortions Correction Plants in Textile Industry. Nonlinear Modelling and Control

Razvan PREJBEANU and Ion Marian POPESCU

Modeling and Simulation of Autonomous Systems with Voltage Inverters Output Filters and Asynchronous Motors

Andrzej KOT and Agata NAWROCKA

Human Sway Response for the Sine Excitation

Andrea MOJZISOVA and Jana POC SOVA

Automatic Test Generator for Analytic Geometry

Krzysztof PYTEL, Wiktor HUDY, Stanisław GUMUŁA, Malgorzata PIASKOWSKA - SILARSKA, Uliana MARIKUTSA and Ihor FARMAHA

Application of Evolutionary Algorithms to Analysis the Possibilities of Wind Energy Use

Tamas KOVACSHAZY and Sámuel VÁRALLYAY

Time-Driven Sub-GHz Wireless Communication Protocol for Real-Time Cyber-Physical Systems

Krzysztof PYTEL, Franciszek KURDZIEL and Adam KALWAR

The Impact of Changes in Operating Parameters on the Bag Filter in the WR - 25 Water Boiler

Agata NAWROCKA, Marcin NAWROCKI and Andrzej KOT

Artificial Neural Network for Robot Manipulator Control

Emil PETRE, Dan SELISTEANU, Constantin ŞULEA-IORGULESCU and Sorin MEHEDINTEANU

Mathematical Modelling and Control for an Activated Sludge Process in a Wastewater Treatment Plant

19:30 – 21:00 Dinner

Wednesday – 29.05.2019

07:00 – 09:00 Breakfast

