2014 6th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops

(ICUMT 2014)

St. Petersburg, Russia
6-8 October 2014

IEEE

IEEE Catalog Number: CFP1463G-POD
ISBN: 978-1-4799-5292-2

Program

OPNTDS

Green Networks: An energy-oriented model for IP Over WDM Optical Networks
Georgia Beletsioti (Aristotle University of Thessaloniki, Greece); Constantine Kyriakopoulos, Georgios Papadimitriou and Petros Nicopolitidis (Aristotle University, Greece); Emmanouel Varvarigos (University of Patras & Computer Technology Institute, Greece)
pp. 1-6

Keynote: Control Systems, Robotics, and the Neurosciences: A New(?) Convergence

Coffee Break

Optical Networks and Systems

IFAISTOS: A Fair and Flexible Resource Allocation Policy for Next-Generation Passive Optical Networks
Panagiotis Sarigiannidis (University of Western Macedonia, Greece); Georgios Papadimitriou and Petros Nicopolitidis (Aristotle University, Greece); Emmanouel Varvarigos (University of Patras & Computer Technology Institute, Greece); Malamati Louta (University of Western Macedonia, Greece); Vasiliki Kakali (Aristotle University of Thessaloniki, Greece)
pp. 7-14

Energy-aware Lightpath Routing in Optical Networks Based on Adaptive Heuristics
Constantine Kyriakopoulos, Georgios Papadimitriou and Petros Nicopolitidis (Aristotle University, Greece); Emmanouel Varvarigos (University of Patras & Computer Technology Institute, Greece)
pp. 15-22

Cost Effective WDM-AON with Multicarrier Source Based on Dual-Pump FOPA
Sergejs Olonkins, Sandis Spolitis, Iļja Ļašuks and Vjaceslavs Bobrovs (Riga Technical University, Latvia)
pp. 23-28

RABAN I: Recent Advances in Broadband Access Networks

Frequency domain data-aided channel estimation for OFDM signals
Dmitry Sarana and Vladimir Irtuga (SAD-COM Ltd., Russia)
pp. 29-32

Dynamic, Fair and Coordinated Resource Allocation for Backhaul Links for Heterogeneous Load Conditions in LTE-Advanced Relay Systems
Miguel Eguizabal-Alonso and Angela Hernández-Solana (University of Zaragoza, Spain)
pp. 33-40

SFR-based vs. FFR-based Inter-Cell Interference Coordination for Inband Relay LTE-A Networks
Miguel Eguizabal-Alonso and Angela Hernández-Solana (University of Zaragoza, Spain)
pp. 41-47

Performance Study of BFAM 2D-RLS Channel Estimator for AOFDM based Two-Way Relay
Arun Joy (Albertian Institute of Science & Technology, India); Vijay Kumar Chakka (Shiv Nadar University Greater Noida, India)
pp. 48-53

Control Systems 1

VCTS: Special Session on Vehicle Connectivity Technology & Services

Vehicle Speed Estimation Using Roadside Sensors
Dmitrii Obertov and Vladimir Bardov (ITMO University, Russia); Boris Andrievsky (IPME RAS & SPb State University, Russia)
pp. 111-117

Automated Test System Based on Tellus for In-vehicle CAN Network
Xinhong Yang (China Beijing Automotive Technology Co., Ltd, P.R. China)
pp. 118-122

Layer 1 and 2 of a Ring-based, Real-Time Network for In-Vehicle Communication
Harald Richter and Ahmad Obeid (Clausthal University of Technology, Germany); Mikhail Glukhikh and Mikhail Moiseev (St. Petersburg State Polytechnical University, Russia)
pp. 123-130

Designing Roadside Mesh Network with TDMA
Alexander A Bahtin (Moscow Institute of Electronic Technology (Technical University), Russia); Roman Safronov, Ilya Muravyev and Sultanmurad Muratchaev (National Research University of Electronic Technology (MIET), Russia)
pp. 131-135

Security and Attacks Prevention

Secret Key Generation Based on Channel and Distance Measurements
Ahmed Badawy (Politecnico di Torino, Italy); Tamer Khattab and Tarek M. Elfouly (Qatar University, Qatar); Amr Mohamed (Qatar University & Qatar University Wireless Innovations Center, Qatar); Daniele Trinchero (Politecnico di Torino & iXem Labs, Italy)
pp. 136-142

Performance Comparison of Defense Mechanisms Against TCP SYN Flood DDoS Attack
Samad Salehi Kolahi (Unitec Institute of Technology, New Zealand); Amro Alghalbi (Unitec New Zealand, New Zealand); Abdulmohsen Alotaibi, Saarim Ahmed and Divyesh Lad (Unitec, New Zealand)
pp. 143-147

Attacks and their Defenses for Advanced Metering Infrastructure
Sheeraz Lighari (Aalborg University Denmark, Denmark)
pp. 148-151

Lunch

Keynote: Ford Applink and Open Source SmartDeviceLink

Coffee Break

Miscellaneous

A Generalized Correlation Noise Model for Pixel Domain Wyner-Ziv Video Coding
Anton Veselov and Marat Gilmutdinov (Saint-Petersburg State University of Aerospace Instrumentation, Russia)
pp. 152-156

Expanding Design Space for Complex Embedded Systems with HLD-methodology
Alexey Platunov (ITMO University & LMT Ltd., Russia); Arkady Kluchev (ITMO-University, Russia); Aleksandr Penskoi (ITMO University & LMT Ltd., Russia)
pp. 157-164

Vanadium Redox Flow Batteries Diagnostics Adapted for Telecommunication Application
Evgeny Denisov and Alfia Salakhova (Kazan National Research Technical University, Russia); Aditya Poudyal (Technical University of Ilmenau & Aalto University, Germany); Ralf Peipmann (Technical University of Ilmenau, Germany); Aouss Gabash (Ilmenau University of Technology, Germany)

RABAN II: Recent Advances in Broadband Access Networks

Control Systems 2

NsCC: 1st International Workshop on Nano-scale Computing and Communications

Services

Network Modeling and Control

Welcome Reception

Short Range Wireless Technologies

A Scalable Localization System for Critical Controlled Wireless Sensor Networks
Thanh-Dien Tran (University of Coimbra, Portugal); José Oliveira (Eneida Wireless & Sensors, S.A., Coimbra, Portugal); Jorge Sá Silva and Vasco Pereira (University of Coimbra, Portugal); Nuno Sousa (Eneida Wireless & Sensors, S.A., Coimbra, Portugal); Duarte Raposo and Francisco Cardoso (University of Coimbra, Portugal)
pp. 302-309

Practical Concerns of Implementing Machine Learning Algorithms for W-LAN Location Fingerprinting
Jörg Schäfer (Frankfurt University of Applied Sciences, Germany)
pp. 310-317

Metrics for short-term radio signal disturbances detection in Wireless Sensor Networks
Marina Eskola and Tapio Heikkilä (Technical Research Centre of Finland, Finland); Marko Korkalainen (VTT Technical research centr of Finland, Finland)
pp. 318-325

Self-organizing relay network supporting remotly deployed sensor nodes in militay operations
Dalimir Orfanus (ABB, Norway); Frank Eliassen (University of Oslo, Norway); Edison Pignaton de Freitas (Federal University of Rio Grande do Sul, Brazil)
pp. 326-333

Comparison of protocols for Ubiquitous wireless sensor network
Ammar Muthanna (State University of Telecommunications, Russia); Andrey Prokopiev (Ubitel, Russia); Alexander Paramonov (The Bonch-Bruevich Saint-Petersburg State University of Communication, Russia); Andrey Koucheryavy (Giprosviaz, Russia)
pp. 334-337

A Differential Space-Time Coded RFID System
Kiattisak Maichalernnukul (Rangsit University, Thailand); Feng Zheng (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)
pp. 338-340

Control Systems 3

Application of "Consecutive Compensator" Method for Robotic Manipulator Control
Alexey Margun, Konstantin Zimenko, Dmitry Nikolaevich Bazylev, Alexey Bobtsov and Artem Kremlev (ITMO University, Russia)
pp. 341-345

Teleoperation for Learning by Demonstration: Data Glove versus Object Manipulation for Intuitive Robot Control
Kamil Kukliński (Bialystok University of Technology, Poland); Thiusius Rajeeth Savarimuthu, Dorthe Sølvason, Maria aus der Wieschen, Franziska Kirstein and Kerstin Fischer (University of Southern Denmark, Denmark); Ilka Marhenke (University of Southern Denmark, Germany); Norbert Krueger (University of Southern Denmark, Denmark)
pp. 346-351

Decentralized Multi-Agent Tracking of Unknown Environmental Level Sets by a Team of Nonholonomic Robots
Alexey Matveev, Kirill Ovchinnikov and Anna Semakova (Saint Petersburg University, Russia)
pp. 352-359

Sliding Mode with Tuning Surface Control for MEMS Vibratory Gyroscope
Yury Myshlyayev (Bauman Moscow State Technical University, Kaluga Branch, Russia); Tar Yar Myo and Alexander Finoshin (Bauman Moscow State Technical University, Russia)
pp. 360-365

Low Layers Issues I

Lunch

Control Systems 4

The use of integral adaptation principle to increase the reliability of synchronous generator nonlinear excitation system
Andrey Kuz'menko (Southern Federal University & Computer Technologies and Information Security Institute, Russia); Alexander Synitsin and Alisa Zyiryanova (Southern Federal University, Russia)
pp. 415-420

Comparative Study Between Subspace Method and Prediction Error Method for Identification of Gas Turbine Power Plant
Omar Mohamed (University of Benghazi, Libya)
pp. 421-428

Median Modal Control of Interval Continuous-Time Plants
Olga Slita and Anatoliy Ushakov (ITMO University, Russia)
pp. 429-433

PWM Speed Control of DC Motor based on Singular Perturbation Technique
Valery D. Yurkevich and Nikita Stepanov (Novosibirsk State Technical University, Russia)
pp. 434-440

Modified Robust Backstepping Algorithm for Plants with Time Delay
Igor Furtat (ITMO University, Russia); Evgeny Tupichin (Lukoil Overseas, Russia)
pp. 441-445

Synergetic synthesis of power saving control for locomotive asynchronous drive systems
Andrey Popov, Ivan Radionov and Alexey Mushenko (Southern Federal University, Russia)
pp. 446-450

Low Layers Issues II

Low Complexity K-Best based Iterative Receiver for MIMO Systems
Rida El Chall (INSA de Rennes & IETR, France); Fabienne Nouvel (University of RENNES, France); Maryline Hélard (INSA Rennes & IETR Institute of Electronics and Telecommunications of Rennes, France); Ming Liu (Institute of Electronics and Telecommunications of Rennes (IETR), France)
pp. 451-455

Designing the MIMO SDR-based LPD Transceiver for Long-range Robot Control Applications
Vladimir Lavrukhin (The Bonch-Bruevich St. Petersburg State University of Telecommunications, Russia); Grigoriy Fokin (The Bonch-Bruevich St. Petersburg State University of Telecommunications & Radio Research and Development Institute (NIIR), Russia); Danil Bulanov, Dmitry Volgushev and Artem Kireev (The Bonch-Bruevich St. Petersburg State University of Telecommunications, Russia)
pp. 456-461

Blind Interference Alignment for Three-User Multi-Hop SISO Interference Channel
Pedram Kheirkhah (University of Tehran, Iran); Mahtab Mirmohseni (Sharif University of Technology, Iran); Mohammad Ali Akhaee (School of Electrical & Computer Eng., College of Eng., University of Tehran, Iran)
pp. 462-467

Closed-Form Expression of the Ergodic Capacity in a Cognitive Radio Link under Power Constraints
Maha Ghanem (Lebanese University, Lebanon); Hiba Bawab (INSA Rennes, Lebanese University, France); Oussama Bazzi (Lebanese University, Lebanon); Youssef Nasser (American University of Beirut, Lebanon); Philippe Mary (INSA Rennes, IETR UMR CNRS, France); Jean-François Hélard (IETR, France)
pp. 468-472

Interference Alignment for Two-User Two-Hop Interference X-Channel with Delayed and No CSIT
Pedram Kheirkhah (University of Tehran, Iran); Mahtab Mirmohseni (Sharif University of Technology, Iran); Mohammad Ali Akhaee (School of Electrical & Computer Eng., College of Eng., University of Tehran, Iran)
pp. 473-479

High-performance low-power smart antenna for smart world applications
Albert A. Lysko (Council for Industrial and Scientific Research & CSIR Meraka Institute, South Africa); Mofolo Mofolo (Council for Scientific and Industrial Research (CSIR), South Africa)
pp. 480-484

APTP+MS I

Two Approaches to Analyzing Dynamic Cellular Networks with Limited Resources
Valeriy Naumov (Service Innovation Research Institute, Finland); Konstantin Samouylov and Eduard Sopin (Peoples' Friendship University of Russia, Russia); Sergey Andreev (Tampere University of Technology, Finland)
pp. 485-488

Simulation of SIP-server with hysteretic input and Loss-Based Overload Control scheme
Konstantin Samouylov, Yuliya Gaidamaka and Margarita Talanova (Peoples' Friendship University of Russia, Russia); Oleg Pavlotsky (Moscow Technical University of Communications and Informatics, Russia)
pp. 489-494

Queuing Model for SIP Server Hysteretic Overload Control with K-state MMPP Bursty Traffic
Pavel Abaev (Peoples' Friendship University of Russia, Russia); Anastasia Khachko and Vitaly Beschastny (Peoples' Friendship University of Russia, Russia)
pp. 495-500

Sample Space Reducing for Statistical Decision Effectiveness Increasing
Fedor I Tsitovich and Ivan I Tsitovich (Institute for Information Transmission Problems, Russia)
pp. 501-506

Asymptotic Analysis of the Infinite-Server Queueing System with High-Rate Semi-Markov Arrivals
Alexander Moiseev and Anatoly Nazarov (Tomsk State University, Russia)
pp. 507-513

Queueing System with Renewal Arrival Process and Two Types of Customers
Ekaterina Pankratova and Svetlana Moiseeva (Tomsk State University, Russia)
pp. 514-517

Coffee Break

APTP+MS II

Stabilization of a high performance cluster model
Alexander Rumyantsev (Karelian Research Centre of RAS, Russia)
pp. 518-521

An application of the inspection paradox in stability analysis of optical systems
Evsey Morozov (Institute of Applied Mathematical Research, Karelian Research Centre, RAS, Russia); Lyubov Potakhina (Institute of Applied Mathematical Research, Karelian Research Centre RAS, Russia)
pp. 522-525

Economical analysis of congested networks
Sergey Vasilyev (Peoples' Friendship University of Russia & Russia, Russia); Leonid Sevastyanov (Peoples' Friendship University of Russia, Russia)
pp. 526-533

Control Systems 5

Control Systems 6

Bus city tour

Round Tables on Selected Topics