

2019 International Conference on Applied Electronics (AE 2019)

**Pilsen, Czech Republic
10 – 11 September 2019**



**IEEE Catalog Number: CFP1969A-POD
ISBN: 978-1-5386-8054-4**

**Copyright © 2019, University of West Bohemia
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1969A-POD
ISBN (Print-On-Demand):	978-1-5386-8054-4
ISBN (Online):	978-80-261-0812-2
ISSN:	1803-7232

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Rymus J.	Simulating ADAS Sensors, their Placement and Environment (Invited Lecture – Abstract)	1
Barri D., Jakovenko J.	Design and Optimization of an Active OTA-C Filter Based on STOHE Algorithm	3
Belik M.	Calculation of Solid Particle Trajectory Inside Electrical Separator Based on Measured Values	9
Bhajana V., Drabek P.	A Novel ZCS/ZVS Bidirectional DC-DC Converter for Energy Storage Applications	15
Brtnik B., Matousek D.	Active-RC Filters Suitable as Antialiasing and/or Reconstruction Filters	21
De S., Niklas M., Rooney B., Mottok J., Brada P.	Towards Translation of Semantics of Automotive Interface Description Models from Franca to AUTOSAR Frameworks	25
Doskocil R., Krivanek V., Bergeon Y., Kornelly T.	Mobile Phone as a Sensor for Robot Navigation System	31
Dragoun J., Talla J., Kosan T.	Converter Power Losses Computation by FPGA-Based HIL Simulator	39
Draxler K., Hlavacek J., Styblikova R.	Calibration of Instrument Current Transformer Test Sets	43
Eroglu H.	Design and Implementation of a High Voltage Source for Biphasic Electrical Stimulators	47
Freitas L., Nogueira A., Melgar M.	Data Validation System Using QR Code and Meaningless Reversible Degradation	51
Gheltu S.	Correlations of the Vowel Formants in Romanian and Emotional Effects on Formants	55
Glasberger T., Kosan T., Molnar J.	Rack Mounted Low-Profile Indirect Frequency Converter	59
He Y., Chiang H., Chen J., Chang P.	The Inaccuracy of Compensation System of Spindle Thermal Growth in Machine Tool Application and its Solution	63
Holota R., Koucky V., Krist P., Valenta P., Masek B.	Electronic System for Controlled Modification of Temperature Field in Sheet Metal Blanks	67
Hrbcek J., Bubenikova E., Janota A.	Development of the Short Time Signals Processing Unit Using an Embedded System	71
Jicinsky M., Mares J., Verespejova L., Chovanec M.	Speech Processing in Diagnosis of Vocal Chords Diseases	75
Jilek J., Stork M.	Assessment of Three Multiple Cuff Blood Pressure Devices	79

Kenyeres M., Kenyeres J.	Distributed Network Size Estimation Executed by Average Consensus Bounded by Stopping Criterion for Wireless Sensor Networks	83
Kenyeres M., Kenyeres J.	On Comparative Study of Deterministic Linear Consensus-Based Algorithms for Distributed Summing	89
Kovar P., Puricer P., Morong T., Sturc F.	Digital Up and Down Converter for High Performance VHF and UHF Transceiver	95
Kubik Z., Skala J.	Electromagnetic Interference from DC/DC Converter of Photovoltaic System	99
Matousek D., Brtnik B.	Rationalisation of the Fibonacci Charge Pump	103
Mischie S., Pazsitka R.	Designing a MSP430 Bootloader	107
Niedermaier M., Fischer F., Merli D., Sigl G.	Network Scanning and Mapping for IIoT Edge Node Device Security	111
Peniak P., Bubenikova E.	Validation of IoT Secure Communication Gateway for Constrained Devices	117
Petrzela J.	Circuit Equivalent to Rucklidge System	123
Pichlik P.	Evaluation of Phase Shift in Electric Drive by Kalman Filter for Wheel Slip Control	127
Ponomarenko S., Zaleshin A.	About One Pseudolinear Approximation of Exponent	131
Ponomarenko S., Zaleshin A.	Sample and Hold Passive Mixer	135
Scharfenberg G., Elis L., Hofmann G.	New Design Methodology – Using VHDL-AMS Models to Consider Aging Effects in Automotive Mechatronic Circuits for Safety Relevant Functions	141
Sido J., Konopík M., Reismüllerová J.	Deep Learning for Text Data on Mobile Devices	147
Skarolek P., Lettl J.	Tracking Deadtime Algorithm for GaN DC/DC Converter	151
Stork M., Mayer D.	Modified Tellegen Principle Used for Power and Energy Systems Modeling	155
Stork M., Novak J., Broz P.	Cardiac Mathematical Models for Exercise Testing on Treadmill Ergometer	161
Stork M., Pinker J., Weissar P.	Adaptive Control System for Autonomous Vehicle Path Following	165
Teodorescu H.	Chirps for Radar Based on Reciprocal Time, Essential Discontinuities and Chaotic Generators	169
Teodorescu H., Cojocaru V., Katashev A.	Multi-Criterial Assessment of the Uniformity of the Electrical Potential of Micro-Films	173
Vertat I., Dudacek L.	Multidimensional Cross Parity Check Codes as a Promising Solution to CubeSat Low Data Rate Downlink	177

Wagner P., Wilhelm T., Sailer A.	Analyzing Multi-Core Timing Effects on Control Systems via Co-Simulation	183
Zdansky J., Medvedik M.	Performing Safety Functions to Monitor the Protected Area Using a Light Curtain	187
Zdansky J., Valigursky J.	Influence of Distributed SRCS Architectures on Dependability and Safety of Realised Safety Functions	193