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PhD

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RESEARCH INTERESTS

- My research interests are related to the fields of Embedded Systems Implementations, Navigation, Inertial Systems and Neural Networks.

BACKGROUND

Studies

- Oct. 2018 – May. 2020** – *University of Miskolc, Miskolc, Hungary.* PhD Candidate under the Supervision of Dr. J. Vásárhelyi at Department of Automation and Info-Communication.
- Oct. 2017 – Nov. 2018** – *Béla Bartók Music Institute, Miskolc, Hungary.* Jazz studies at Bundzik István classes.
- Sep. 2015 – Sep. 2018** – *University of Miskolc, Miskolc, Hungary.* PhD Student under the Supervision of Dr. J. Vásárhelyi at Department of Automation and Info-Communication.
- 2014 – 2015** – *Ecole Nationale Polytechnique d'Alger, ENP, Algiers, Algeria.* PhD Student under the Supervision of Dr. R. Sadoun at the Laboratory of Signal and Communications.
- 2011 – 2013** – *Master Student in Electronic Instrumentation Engineering* under the supervision of Pr. Y. Remram at *USTHB (University of Sciences and Technologies of Houari Boumediene)*.
- 2009 – 2011** – Jazz studies (Theory and practises in piano and guitar) at Institut Français (ex Centre Culturel Français).
- 2008 – 2011** – Bachelor Student in Electrical Engineering under the supervision of Pr. Y. Remram at *USTHB*
- 2001 – 2014** – Multi-instruments and Musical Theory Student the Central Conservatory of Algiers.

Languages

- English** – Professional working proficiency.
- French** – Fluent.
- Arabic** – Fluent.
- Kabyle** – Native tongue.
- Hungarian** – Beginner.

BACKGROUND (cont'd)

Computing Skills and Software Environment

- Embedded Systems Design (FPGA Design for DSP, Vivado, Xilinx System Generator, PSOC Creator, MATLAB, Simulink, Eclipse, Arduino)
- CAD (*Eagle, Proteus*).
- Programming Languages (*Matlab, C, Assembly*).
- Audio Processing and Music Production (*GarageBand, Audacity, Gold-Wave, Sibelius, MuseScore*).

Diplomas and Distinctions

- June 2018** – *Doctoral Degree*. Hatvany József Information Technology Discipline at *Hatvany József Doctoral School for Information Science, Engineering and Technology. University of Miskolc*.
- June 2018** – *Doctoral Absolutorium*. Hatvany József Information Technology Discipline at *Hatvany József Doctoral School for Information Science, Engineering and Technology. University of Miskolc*.
- Oct 2014** – *2nd Place at the national contest for accessing doctoral studies in Electronic Instrumentation at USTHB*
- June 2013** – *Master of Science Degree* on Electronic Instrumentation Engineering at *University of Science and Technology Houari Boumedién*.
- June 2011** – *Bachelor of Science Degree* on Electrical Engineering at *University of Science and Technology Houari Boumedién*.
- June 2008** – *Baccalaureate* in Science.
- 2011-2014** – Musical Diplomas and Distinctions with High Honours (Piano, Violin and Music Theory).

Research & Engineering Projects

- New Methods for Pose Determination. Contributions to Positioning, Velocimetry and Jerkmeter.
- Real-time implementation of a Jerkmeter on low-cost FPGA.
- New architecture for a High-Resolution Large-Scale ADC; N bit per Volt ADC (In Progress).
- Novel Data Preparation Technique for Inertial Measurements
- Multichannel Reconfigurable Voltage Attenuator (MRVA)
- Hybrid Reconfigurable Solution for Speed Estimation based on Ultrasonic Acoustic Doppler velocimetry (In Progress).
- Artificial Neural Network based Motion Type Recognition System (In Progress).
- A Kalman Filter implementation for GPS-free positioning from acceleration measurement (In Progress).
- Design and Implementation of a Platform for Acoustic Localization of a Sound Source with a Wireless Sensor Network.
- A Monitoring System for Liquid Industrial Wastes.
- An Automated CD/DVD Edition System.
- A Natural Gas Detector .
- An ECG Signal Conditioner.
- ECG Signal Denoising using DWT.

PROFESSIONAL EXPERIENCE

- Sep. 2018 – actually** – *University of Miskolc*, Miskolc, Hungary. Assistant Lecturer and Researcher in the Institute of Automation and Info-Communication. Subjects: Embedded Systems, Embedded Systems and Architectures, Communication Theory, Complex Design of Digital Systems, Control Technique.
- Oct. 2019** – *SAPIENTIA HUNGARIAN UNIVERSITY OF TRANSYLVANIA*, Marosvásárhelyi, Romania. Visiting Lecturer in the Department of Electrical Engineering. Subject: Embedded Systems and Architectures (courses and labs).
- Dec. 2018 – actually** – *University of Miskolc*, Miskolc, Hungary.
Researcher at the Institute of Automation and Info-Communication.
- Sep. 2015 – Sep. 2018** – *University of Miskolc*, Miskolc, Hungary.
Teaching Assistant of Embedded Systems and Architectures subject in the Institute of Automation and Info-Communication. Subjects: Embedded Systems.
- Aug. 2015 – Oct. 2016** – *HOSTAPLAST*, Algiers, Algeria.
Research and Development Electronic Engineer. Project Manager
- Nov. 2014 – Aug. 2015** – *Ecole Nationale Polytechnique d'Alger*, Algiers, Algeria.
Research Assistant at the Laboratory of Signal and Communications.
- May 2014 – Aug. 2015** – *VERCLAM*, Algiers, Algeria.
Research and Development Electronic Engineer. Project Manager
- Oct. 2013 – June 2014** – *Institut National Supérieur de Musique*, Algiers.
Lecturer (Acoustics Subject).
- Dec. 2013 – Mar. 2014** – *Lycée Mokrani II*, Algiers.
Lecturer (Physics Subject).
- July 2006 – nov 2014** – *Algerian National Symphony Orchestra*, Algiers, Algeria.
Violinist
- Jan. 2013 – June 2013** – *University of Sciences and Technology Houari Boumediene*, Algiers.
Research Assistant at Laboratoire d'Instrumentation (LINS)

SCIENTIFIC and ACADEMIC CONTRIBUTIONS

- Books and Materials** – A. Bouzid, J. Vásárhelyi and S.I. Boucetta. "The PSOC 5 LP LABBOOK", Practical Exercises for Embedded Systems and Architecture Subject. ISBN: 978-613-8-43692-8.
- A. Bouzid. "Introduction on Kalman Filtering".
- Theses and Dissertations** – A. Bouzid, "New Methods for Pose Determination. Contributions to Positioning, Velocimetry and Jerkmeter" , PhD on Computer Sciences. Theses Dissertation, 2020.
- A. Bouzid, "Design and Implementation of a Platform for Acoustic Localization of a Sound Source with a Wireless Sensor Network" , Master of Science. Thesis Dissertation, 2013.
- A. Bouzid, "Digital Recording Applied to the Musical Field", Bachelor of Science. Dissertation, 2011.

SCIENTIFIC and ACADEMIC CONTRIBUTIONS (cont'd)

Publications and Communications

- A. Reda, A. Bouzid, J. Vásárhelyi, "Model Predictive Control for Automated Vehicle Steering". Acta Polytechnica Hungarica. Sep 2020. 17(7):163-182
- A. Bouzid, J. Vásárhelyi, "Implementation and Experimentation of an Embedded Data Acquisition/Preprocessing System based on Hybrid Reconfigurable Hardware Accelerator for Inertial Measurements". IEEE Transactions on Industry Applications. Jan 2020. (Q1 Journal, IF: 3.347)
- A. Bouzid, J. Vásárhelyi, "High-Resolution Large-Scale ADC. Case study of an N bit per Volt ADC Implemented using FPAA and FPGA Applied for Precision Altimetry". Submitted for 21st INTERNATIONAL CARPATHIAN CONTROL CONFERENCE ICCCC2020.
- A. Bouzid, J. Vásárhelyi, "New Methods for Pose Determination - Case Study of Positioning and Velocimetry", ENELKO 2019 SzámOkt. Oct 2019
- A. Bouzid, J. Vásárhelyi, "Vehicular Acoustic Doppler Velocimetry based on Reconfigurable Analog and Digital Design. Theoretical Approach and Review", MultiScience - XXXII. microCAD International Multidisciplinary Scientific, 2018.
- A. Bouzid, J. Vásárhelyi, "Hardware Acceleration Design and Implementation for Inertial Navigation Applications", 19th International Carpathian Control Conference ICCCC'2018.
- A. Bouzid, J. Vásárhelyi, "Survey about The PSOC5 LABBOOK", International Conference on Vehicle and Automotive Engineering, 2018.
- A. Bouzid, J. Vásárhelyi, "Implementation of Dead Reckoning Solution on Zynq Target", 18th International Carpathian Control Conference ICCCC'2017.
- A. Bouzid, J. Vásárhelyi, R. Bartók, L. Czap, "Pose Determination for Autonomous Vehicle Control", LECTURE NOTES IN MECHANICAL ENGINEERING 1, 2016.
- A. Bouzid, J. Vásárhelyi, R. Bartók, R. Sadoun and J. Végh, "Implementation of INS/MAG/GNSS hybridisation technique for pose determination based on SoC and low cost sensors: Theoretical approach and synthesis", 17th INTERNATIONAL CARPATHIAN CONTROL CONFERENCE ICCCC'2016.
- A. Bouzid, J. Vásárhelyi, "New Result in Pose Determination for Autonomous Vehicle Control Based on SoC" , 2016.
- S.I. Boucetta, Z.C., Johanyák, A. Bouzid: "Survey on Vehicular Ad-hoc Networks". 9th International Scientific and Expert Conference 2018.
- S.I. Boucetta, Z.C., Johanyák, A. Bouzid: "Simulation-based Comparison and Analysis of Time-based and Topology-based Emergency Dissemination Protocols in VANETs". 2019 6th International Conference on Systems and Informatics (ICSAI 2019) Lingang, Shanghai, China. not yet accepted for publication

SCIENTIFIC and ACADEMIC CONTRIBUTIONS (cont'd)

- R. Bartok, A. Bouzid, J. Vásárhelyi, M. L. Kiss. "Wall and Object Detection with FRI and Bayes-Classifer for Autonomous Robot". LECTURE NOTES IN MECHANICAL ENGINEERING F12 pp. 383-389. , 7 p. (2017).

VARIOUS ACTIVITIES

- Musical Composer/Arranger (Jazz and World Music Influences).
- Pianist with *Arrange Service*.
- Football and Tennis Playing.