

ROMAN ZYGMUNT KACPRZAK

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PROFILE

Research and Development, Systems Engineer, Mechatronics Engineer, with MSc in Computer Science and PhD in Control Engineering and Robotics with over 8 years' experience of engineering complex electro-mechanical automotive systems and 10 years in academic environment. Capable of applying extensive engineering knowledge and practice of Vehicle Network Architecture, Embedded Programming, Control Engineering, Electric Sensors and Actuators, OBD Diagnostics, Model Based Development, Software Validation in developing a wide range of automotive applications.

Good interpersonal skills, relates well to a variety of people, teamwork, proactive, actively listening and building constructive relationship

KEY ACHIEVEMENTS

- During my work for aftermarket company Car Parts Industries UK Ltd I have designed and developed complex mechatronic system for pre-testing purposes of products being prepared to be remanufactured. By introducing the OBD diagnostics based pre-testing process all components could be fully evaluated and only good headed to further remanufacture. The issue of testing filthy cores and final assembled products on the same test rig was eliminated. The results improved the FMEA activity significantly. The pre-tester features open architecture so all new models of remanufactured EPS products could be easily integrated in the future.

KEY SKILLS

C microcontroller programming, control method design (Matlab/Simulink, Stateflow, TargetLink), automotive protocols (Flexray/CAN/LIN) simulation and diagnostics (CANalyzer/CANoe), ECU pre-calibration and flashing, HIL testing (CANalyzer/CANape), vehicle function development, software validation and version management (Polyspace, MISRA-C, DOORS)
languages: English, German, Polish

EMPLOYMENT EXPERIENCE

GLIWA Ltd.,

07/2019 – 10/2019

Embedded Software Engineer

- Scoping, designing, implementing, testing and maintaining the components of the world-leading software timing suite T1 for real-time tracing
- Debugging with Lauterbach tools T1-Target code on STM32 32-bit Arm Cortex, Infineon 32-bit TriCore™ AURIX™ multi-cores microcontrollers
- Setting up new ST evaluation board with ARM®v8-R architecture based 32-bit ARM® Cortex®-R52 6 cores microcontroller for automotive ASILD applications
- performing timing analysis tasks with T1

ZF Group, Active & Passive Safety Technology**01/2019 – 05/2019****Software Engineer (Base Software Team)**

- Developing Base Software and Application modules for E/E Power Steering ECU, Torque/Steering Angle sensors and electric motors.
- Model development/adaptation for automatic C code generation (IBM Rational Rhapsody for Software Developer)
- Performing Unit Test (Cantata), Static Analysis Test (Polyspace), Functional/Integration Test
- C code analysis

Jaguar Land Rover Ltd.**11/2017 – 12/2018****Systems Engineer (Power Train Driveline Controls)**

- Driveline control modules development
- HIL pre-calibration, HIL functional validation, Vehicle validation on proving ground, signal/data analysis
- Verifying component diagnostics (PID, DTC)
- Verifying implementation of Network and Communication module Software/Hardware (Flexray/CAN)
- Verifying system wiring diagrams
- Environmental/EMC test plan review
- Coding and scripting (CAPL scripts, Matlab/Simulink/Stateflow)
- Requirements management, systems definition, systems integrations, assessment and acceptance (RMDV: RTC/DOORS)
- Liaising with component supplier, leading meetings and reviews

PSR Direct Ltd.**04/2016 – 09/2017****Head of Research and Development and New Product Introduction**

- Extending Electric Power Assisted Steering racks portfolio, releasing EPS products onto the market that have until now not been available
- Vehicle network re-engineering - providing new emulation data for testing purposes
- Developing new testers for different EPS subcomponents

Research Hub Ltd.**01/2016 – 03/2017****Research and Development Engineer, self-employed**

- Designed / Developed mechatronics test rig for EPS racks
- Specified test plans and run tests
- Implemented developed software/hardware solution (automotive network traffic simulation)
- Provided consultancy services for aftermarket and motorsport industry
- Performed diagnosis, updated/flushed EPS ECUs
- Electric Sensors/actuator signals decoding/converting

Car Parts Industries (BORG Automotive Group)**03/2014 - 01/2016****Research and Development Engineer**

- Acted as the EPS expert in mechatronic matters within the group
- Re-engineered / Developed / Introduced into production new EPS products

- Designed / Developed complex mechatronic systems for pre-testing purposes
- Specified test plans, run tests, diagnosed faults, provided solution
- Provided technical liaison with NPI department
- Ensured conformity to safety standards (ISO26262)

BORG Automotive (Poland)

03/2012 - 02/2014

Research and Development Engineer

- Contributed to multi-disciplinary projects within the group (EPS, starters, alternators, AC compressors)
- Provided creative solution to the problems
- Re-engineered software/hardware issues of remanufactured products
- Provided technical/scientific liaison with Universities

SITECH for VW Braunschweig

02/2011 - 02/2012

Software Developer

- Developed functions for Electric Power Steering (fitted in newest VW vehicles)
- Validated software according to MISRA-C rules
- Managed software changes with DOORS
- Discussed and implemented changes in software models

Fujitsu Technology Solution (Poland/Lodz)

11/2010 - 01/2011

IT Support Consultant

- Customer-oriented 1-Level supporter with English and German
- Service-minded, result-oriented with technical experience 2-Level supporter
- Supported financial business customer around the world
- Experienced in technical troubleshooting and analysis methods

University of Social Science (Poland/Lodz)

10/2005 - 10/2010

Lecturer

- Teaching computer science, information technology, programming languages
- Organized MS Office training courses

German Universities (Weingarten, Wuerzburg)

10/2001 - 10/2004

Lecturer and Research Assistant

- Taught Robotics and Control Engineering
- Supervised international student projects

EDUCATION & TRAINING

Technical University of Lodz (Poland), 09/2004-09/2008 (2011)

Doctor of Philosophy (Ph.D.) in Robotics, and Automation Engineering

Technical University of Lodz (Poland), 09/1995-09/2001 (2001)

Engineer and Master of Science in Computer Science

Courses:

CANoe Fundamentals Workshop, Vector Informatik GmbH

Real-Time Workshop (RT01), Integrating Code with Simulink (SL03), Mathworks

Stateflow for Automotive Application

INTERESTS

Gardening, DIY, Walking, Hiking, Fishing, Country Sightseeing

Publication related to PhD thesis:

APPLICABILITY ESTIMATION OF A LOW-COST HAPTIC DEVICE FOR THE PURPOSE OF STEERING THE MOBILE PLATFORM

Abstract: In this paper a concept of using an easily accessible (i.e. commercially available for common home user) model of enhanced user interface – Haptic Device – for purpose of steering a mobile platform is presented. The functional requirements for the investigated device are specified based upon literature sources and verified empirically by author by performing real-time experiments in Matlab\Simulink.

(PDF) Applicability estimation of a low-cost haptic device for the purpose of steering the mobile platform. Available from:

https://www.researchgate.net/publication/228459716_Applicability_estimation_of_a_low-cost_haptic_device_for_the_purpose_of_steering_the_mobile_platform [accessed Mar 15 2019].