PERSONAL DETAILS

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PROFILE

A highly motivated and product oriented Senior Embedded Software/Firmware Engineer with 12 years of experience in software (bare metal/RTOS) and firmware design, development and testing. An effective team player who as well has a proven track record of projects delivery from start to finish working on his own. Seeking for a new contract.

TECHNICAL SKILLS

OS	• MS Windows	• Linux
RTOS	• Keil RTX • FreeRTOS	• AUTOSAR
Programming languages	• Embedded: C (12 years), Assembly (2 years) • Desktop: C# (3 years), C++ (3 years) • Scripting: Python (2 years), LUA (2 years), Bash (1 year), Perl (6 months) • Hardware Description: VHDL (2 years), Verilog (6 months) • System Level: MATLAB/Simulink (1 year), LabVIEW (6 months)	
Software Development Toolchains	• MS Visual Studio • Eclipse • S32 Design Studio • C++ Builder • ZeroBrane Studio	• Green Hills MULTI • Keil MDK • IAR Embedded Workbench • CodeWarrior • Microchip MPLAB
EDA Tools	• FPGA: Xilinx ISE/Vivado Design Suite, Intel/Altera Quartus, Microsemi Libero, ALDEC Active-HDL • HW/SW Co-verification: Mentor Graphics Seamless + ModelSim • Schematic capture: EAGLE, Altium Designer, CADSTAR • Analog IC Design: Cadence Virtuoso & Spectre • Analog Circuit Simulation: ORCAD PSpice, LTspice • Automotive in-vehicle networking: Vector's CANoe	
IF/Protocols	• FlexRay/CAN/LIN, I2C, I2S, SPI, 1-wire, RS-232/485, HDMI, MIPI, TCP/IP, Bluetooth(Classic, BLE)	
Version control	• Git, SVN, CVS, IBM Rational Team Concert, DOORS	

EMPLOYMENT HISTORY

Consultant/Contractor   Jul 2017 - Now
PS Embedded Ltd (Founder)   Derby, England
Contracts:
- 16 months as Senior Embedded SW Eng @ Nippon Seiki (automotive):
  - Driver Information Display development (Renesas RH850 and NXP i.MX6 uCs),
  - Root Cause and Impact Analysis in compliance with ASPICE
  - New functionality and bug fixes implementation following MISRA C 2012 rules e.g. gauges, voltage monitor, hybrid, audio driver, HMI, diagnostics (UDS, DTC)
  - Integration testing
  - Liaising with OEM and Tier1 suppliers

- 6 months as Senior Electronics Eng @ Taylor Hobson (precision technology company):
  - metrology instrument bring-up, fixing issues in host SW and HW (RTL for Intel's FPGA), updating electronic schematics, wiring diagrams and RoHS BoM
  - Emergency Stop Box – concept, design, production and integration testing
  - diagnosing and resolving ESD problems, PAT testing

Freelance projects:
- Changes to GUI (.NET, C#, WinForm) – new functionality and automation of existing features to allow remote (TCP/IP) monitoring and updates of electronic equipment
- feasibility study of low-cost Bluetooth (classic, BLE) sniffer

Software Engineer
Nov 2013 – Jun 2017

Infotec Ltd
Ashby-de-la-Zouch, England

Firmware design and development for STM32 Cortex-M4 uC in C:
- Range of LED Display Controllers for Passenger Information On-Vehicle market
- TFT Display Controller monitoring various display activities e.g. HDMI (HDCP+EDID) config, video scaling, panel temperature, display brightness.
- Driver Interface Unit with character LCD display
- various test rigs software

Coding in C++/LUA for Embedded Linux Yocto Project, Poky build, on i.MX6 based platform:
- Ported text-to-speech engine and implemented passenger information audio announcement algorithms onto the new range of products
- Building, configuring and benchmarking of Chromium Embedded Framework targeting Direct Frame Buffer
- Implemented and tested customer's proprietary communication protocols
- Graphical presentation of passenger information according to client's specifications

Desktop GUI in .NET C#:
- Achieved all types of Infotec's products to be interrogated, controlled, monitored, re-scripted
- Implemented remote, automatic firmware updates of chosen group of products
- Presents all installed displays in a tree diagram style; allows filtering, printing to pdf, Excel
- Supports various Infotec's protocols
- Record of every shipped product stored in XML or JSON formats

Supervision and validation of Android OS based product with Bluetooth and WiFi interfaces
Boards bring up and troubleshooting,
Software testing and verification
Writing technical documentation, user manuals, tutorials
Liaising with customers, consultants

Software Developer
Jun 2013 – Oct 2013

Apical Ltd (Arm)
Mountsorrel, England

FW development for ISP run on Altera NIOS: New system and image related API commands
Design and implementation of universal Data Container and Communication Protocol between PC host and ISP Firmware

Electronic Design/Development Engineer
Jul 2010 – May 2013

Ogden Safety Systems Ltd
Tadcaster, England

13GHz FMCW radar development for PIC32 µC
- Speed calculation using phase shift of Fourier coefficients
- Left/right side target detection, Microphony effect removal and loss signal detection algorithms
- Data logger using I2C RTCC and EEPROM

Test rig for radar PCBs:
- Embedded code for the PIC24 and PC GUI that tests power supply board and processor board: e.g. sidebands, filter characteristics, logger

Data processing engine on Spartan-6 FPGA for 24GHz Multi - Beam radar
- MicroBlaze soft core processor + Hardware blocks (VHDL) in order to process data from 8 receive antennas, 64 coefficients each and create very narrow steerable beam shapes

Radar configuration GUI in Borland C++ Builder
- Algorithms for radar up/down sweep auto -linearization with temperature compensation
- Beam shape adjustment automation

Vehicle Brake Tester demo – benchmarking of various algorithms

Embedded Firmware Engineer
EPSON Electronic Devices

Jan 2008 – Apr 2010
Livingston, Scotland

Automatic Speech Recognition SoC:
- Development of embedded firmware for audio/speech decoder integration (Ogg Vorbis, Speex) over an in-house microkernel OS based on Arm processor
- Design and implementation of boot code for SoC devices – including host I/F configuration, serial/ parallel flash code patching and device initialization
- Co-verification of critical code (boot, patching) and SoC RTL using Mentor Graphics Seamless
- HW/SW verification on ProASIC ACTEL(Microsemi) FPGAs
- Automated test scripts development in Python
- Device bring up – troubleshooting using logic analyzers, oscilloscopes and stimulus generators

Analog Integrated Circuit Intern
Universita degli Studi Roma Tre

Mar 2007 – Aug 2007
Rome, Italy

Design of integrated readout circuitry for CMOS Monolithic Active Pixel Sensor detectors in technology ST0.13µm:
- readout operational amplifier and Gray decoders

RTL Development Intern
Alltech Sp. z. o. o.

Sep 2006
Kartoszyno, Poland

Development of modules with AMBA AHB protocol in VHDL and their connection into Arm MP7 based systems on ACTEL(Microsemi) FPGA
Testing HW/SW integration on HES (Alltech's Hardware Accelerator)

Embedded Systems Trainee
AGH, Department of Electronics

Sep 2004
Krakow, Poland

Design, population and C programming of 8051 µC based boards

EDUCATION

MSc with Distinction in Electronics
AGH University of Science and Technology

Oct 2002 – Sep 2007
Krakow, Poland

Master Thesis: https://www.yumpu.com/en/document/view/6515558/akademia-gorniczo-infn-sezione-di-roma-tre
Several student projects:
- Designed Integrated Circuit of SOI detector test structures – presented during Session of the Students Electronic Society
- Weather monitoring embedded system – Freescale 68HC08 µC; in Protel(Altium) designed; presented at the AGH Students Scientific Session
- Amplifier of a magnetostrictive converter and control system based on 8051 uC
- FSK modem – on Freescale DSP56300
- Digital oscilloscope – run on Xilinx FPGA Spartan III; RTL in VHDL
- Image recognition algorithms e.g. following movement of microbes in the water – in MATLAB

SHORT COURSES

Nov 2015   "Using Keil RTX RTOS on Cortex based microcontrollers", Coventry, UK
- Organised by Hitex

Oct 2008   "DSP Theory, Architectures & Algorithms", Glasgow, UK
- Organised by Steepest Ascent Ltd

LANGUAGES

- Polish (native)
- English (fluent)
- Italian, Russian, German (basics)

References are available on request