VASILY SHMATALYUK

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professional summary

I'm an Electrical Engineering graduate passionate for building innovative hardware and software systems with over 30 months of internship and startup work experience, primarily in the field of industrial R&D.

skills

- Embedded SW dev, C, ARM Cortex M, STM32, nRF5x, ADCs, DMA, UART, SPI, I2C, I2S, RTOS, Bluetooth
- C#, ASP.NET, WPF
- Python, Matlab
- Junior analog circuit design, Cadence Virtuoso, SPICE
- FPGA, Verilog, VHDL
- SolidWorks, junior mechanical design
- PCB design for manufacturing, proficiency with Altium Designer, component selection, knowledge of many packages and footprints, board procurement
- Electrical prototyping, fine-pitch SMD soldering
- Oscilloscopes, function generators, network analyzers
- Interfacing accelerometers, gyroscopes, magnetometers, force sensors

work history

Hardware/Firmware Engineer (Part-Time) Sep 2017 - Current

Texavie Technologies *Vancouver, Canada*

- Lead the development of a data acquisition HW prototype for a wearable textile electronic device.
- Designed, assembled and tested electronics for biasing and reading passive nanofiber sensors. Lead the design and procurement of a custom PCB housing a micro controller SoC.
- Lead the firmware development for an ARM-based nRF52 line of microcontrollers enabling sensor data acquisition, processing and wireless (BLE) data transmission.
- Developed scripts in Python for real-time data visualization and logging.

Embedded Software Engineer Intern May 2017 - Aug 2017

SkyTrac Systems Ltd *Kelowna, Canada*

- Lead the development of a real-time avionics Health and Usage Monitoring System (HUMS).
- Developed algorithms for measuring the vibrational amplitude of individual gears within a helicopter transmission.
- Implemented embedded software drivers for a STM32f4 micro controller in C, which included a four channel ADC, an FFT library, SPI, I2S, and I2C protocols, multiple layers of DMA, an interface layer between two micro controllers within the same product and incorporated them into a custom proprietary RTOS.
- Rewrote the critical portion of the .NET based in-house test automation application in C# allowing automated software testing of avionics.

Electronics Engineering / Firmware Intern Sep 2015 - Aug 2016

SMART Technologies *Calgary, Canada*

- Designed a proof-of-concept Infrared Touch Interface prototype for experimental interactive whiteboards.
- Conducted a feasibility study, electrical circuit design and simulation, full PCB design, assembly and testing.
- Developed prototype firmware for the ARM Cortex M4 microcontroller in C integrating the PCBs into a basic low-latency touch and color recognition device.
- Proposed a MEMS-based force sensor solution for the upcoming wireless stylus project, developed a major part of a prototype (electrical, firmware, desktop software). This solution was incorporated into the production model.
- Participated in numerous side-projects, evaluation and testing of electronic components, various R&D experiments, communication with vendors, assisted senior electrical, firmware and mechanical engineers.

Applied Research Intern Jan 2015 - Aug 2015

Bosch *Stuttgart, Germany*

- Assisted a team of senior engineers and scientists in the research of advanced packaging materials and technologies for MEMS sensors.
- Heavily involved in various lab work, conducted numerous related studies and measurements, analyzed the results and presented them to supervisors.
- Contributed to the design of an automated testing chassis for measuring sensor durability. Designed, assembled and tested a relay control box for motor switching, which included a PCB and 3D-printable enclosure model.
- Designed and 3D printed a scaled demonstration model of a MEMS accelerometer sensor from scratch. Developed a SolidWorks assembly with moving parts inside a complex profile that simulated the oscillating sensing structures of a real MEMS.

Jr. Programmer Analyst Jun 2014 - Dec 2014

Vancity Credit Union *Vancouver, Canada*

- Applied C# coding skills, knowledge of the .NET framework and web protocols to functionally extend and enhance the back-end of the in-house web application for automated testing.
- Developed a model to help manage a large data set of standardized XML messages used to exchange data between disparate banking systems. Used that model to generate specific examples of message instances to be used for formal automated testing.
- Successfully solved a SQL database deadlock problem in a multithreaded environment significantly increasing the processing throughput of the web app.
- Modified and enhanced web UI using Javascript/jQuery and integrated third-party plugins into the testing framework to improve message management functionality.

education

Bachelor of Applied Science in Electrical Engineering, Nanotech & Microsystems Option Sept, 2012 - May, 2018

University of British Columbia

Specialist of Medicine (MD) Sept, 2009 - June, 2012

Vladivostok State Medical University

clubs

UBC Solar – BMS Team Member (Fall 2013)

- In a team of five, designed and built a battery enclosure container with a ventilation system for the Raven solar-powered car.
- Tested the battery management boards and assembled a prototype of a Battery Management System (BMS).
- Prepared technical reports for the upcoming competition, described technical features of the battery system and made sure they met the competition requirements.
- Contacted vendors regarding possible sponsorships and material supplies.

hobbies & interests

Keen fan of underground electronic music, avid downhill rider and snowboarder, guitar player.