Miroslav Vitkov

Curriculum Vitae

✍ Sofia, Bulgaria

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Technical Skills

Major

* **C++14** under procedural, object oriented or functional paradigm
* **C11** for μC or ARM applications
* tools such as git, gitolite, cmake, teamcity, valgrind, clang-tidy, objdump

Minor

* **python** for ML applications
* **bash**, the LFHS, standard utilities, security configuration and evaluation, unix sockets
* LaTeX
* basic electrical engineering - read a schematic, reason about it, use an oscilloscope, desing a filter

Misc

* **haskell** - below junior level
* **regex** - for capture groups
* Autodesk **inventor** - design a simple gearbox and simulate it
* **matlab** - programming, SimuLink modelling
* **R** - for ggplot2
* avr-**asm**

Communication skills

Bulgarian	C2: Native speaker
English	C2: Fluent (Cambridge CPE)
German	A1: Basic

Education

2017 – 2019 **Machine Learning Scientist - dropped**
Cognitive Systems: Language, Learning and Reasoning
University of Potsdam, Germany

2007 – 2016 **Industrial Engineer**
Bachelor Thesis:
Multitasking Autotuning PID Controller in Heat Transfer Application
Technical University of Sofia

2008 – 2010 **Psysicist - dropped**
Sofia University Kliment Ohridski

2003 – 2007 **Communications technician**
High school diploma
Technical School of Communications, Sofia

Projects on GitHub

C++ **face**
Use OpenCV Haar cascades to identify persons.

C++ **rocks**
Multiclass classification. Uses dlib.

C++ **silhouette**
Human silhouette extraction using HOG descriptor, SVM classifier and adaptive background tresholding.

C **micli**
MIcro CLImate controller, an autotuning PID regulator.

C **megaboot**
Simple atmega168 bootloader.

C **cgetset**
Generate getter/setter methods. Self-contained.

PYTHON **rat**
Encrypted chat infrastructure.

PYTHON **rtplot**
Realtime temperature plotting utility.

PYTHON **gender**
Guess the gender of the author of a short paragraph.

BASH **scripts**
Utilities for everyday use.

HASKELL **voiceid**
Identify diferent persons via speech.

LATEX **rpg**
A role-playing game.

INVENTOR **gearbox**
Gearbox calculation and technical drawings.

Work Experience

FEB 2020 - JUL 2020

Smule

C++ Android algorithms

- Revive a legacy codebase (2000 line functions, zero documentation, no authors) but of significant business and engineering importance.
- Segment words from audio stream.
- Remain productive despite endless meetings.
- Write simple tools in python to parse logs and source code.
- Investigate crashes on Android devices.

JAN 2016 - SEP 2017

Euro Games Technology

C++ embedded linux

- Maintain the layer just below Business Logic. Essentially encapsulate SDL2, OpenGL, linux files, IPC, devices and network as to provide an API to internal clients.
- Bill accepting device user-space driver implementation from scratch.
- Script Gitolite hooks and commutnicate their purpose to the other teams.
- Animate custom fonts, draw values based on network updates.

20 MAY 2013 - 21 MAR 2015

Antelope Audio

C++ ARM bare metal

- Implement a reverb in C++ on bare metal ARM.
- Design a GUI communicating with the device using pyQt.
- Implement dynamic biquad filter coefficient update as to respond to the user turning a knob.
- The filter representations in z-domain are combined to yield a frequency response graph.
- Develop UAB2 Audio mode firmware for bare metal ARM.
- JTAG-and-scope debugging.

FEB 2013 - MAY 2013

Johnson Controls

C embedded

Boolean algebra, concurrency, unit tests and documentation.

22 AUG 2011 - 15 JAN 2013

MM Solutions

C++ Android algorithms

Developed and implemanted image stabilization for Android videos. The use of the onboard gyroscope in the feedback loop was novel at the time, allowing unparalleled performance in real-time video capture. Adittionally SIFT features were used for training and for drift correction. All rotations were expressed in quaternions.