Miroslav Vitkov
Curriculum Vitae

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**
	* **bash**, the LFHS, standard utilities, security basics, UNIX sockets
	* LaTeX
	* basic electrical engineering - read a schematic, reason about it, use an oscilloscope, design a filter
	* SQL
	* ML - cross validation, ensembles, dataframes, measures of correctness, Markov processes, SVM
MISC	* **Haskell** - below junior level
	* **regex** - for capture groups
	* Autodesk **Inventor** - design a simple gearbox and simulate it
	* **MatLab** - programming, SimuLink modeling
	* **R** - for ggplot2
	* avr-**asm**
	* control theory - s-, z-transform, stability, pole placement

COMMUNICATION SKILLS

BULGARIAN	C2: Native speaker
ENGLISH	C2: Fluent (Cambridge CPE)
GERMAN	A1: Basic

❄ | Aug 1988
✍ | Sofia, Bulgaria
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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	**Physicist - 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 thresholding.

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 different 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 communicate their purpose to the other teams.
- Deliver a several months long project with minimal supervision.
- Animate custom fonts, draw values based on network updates.

May 2013 - 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 bi-quad 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 USB2 Audio mode firmware for bare metal ARM.
- JTAG-and-scope debugging.
- Collaborate closely with teams of vastly different skill sets - HW engineers, audio engineers, visual artists.

Johnson Controls
C embedded

Boolean algebra, concurrency, unit tests and documentation.

MM Solutions
C++ Android algorithms

Digital video stabilization for the Android camera. By anchoring the feedback loop to the onboard gyroscope instead of to image features we achieved unparalleled real-time performance.