




# Miroslav Vitkov

## Curriculum Vitae

### TECHNICAL SKILLS

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- MAJOR
- \* **C++14** under procedural, object oriented or functional paradigm
  - \* **C11** for  $\mu$ C 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
  - \* **TEX**
  - \* 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** - only worth for ggplot2
  - \* **USB2** - bus firmware for a bare-metal device

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### EDUCATION

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- 2017 – NOW    **Machine Learning Scientist**  
COGNITIVE SYSTEMS: LANGUAGE, LEARNING AND REASONING (MASTER OF SCIENCE)  
*University of Potsdam, Germany*
- 2007 – 2016    **Industrial Engineer**  
BACHELOR THESIS:  
MULTITASKING AUTOTUNING PID CONTROLLER IN HEAT TRANSFER APPLICATION  
*Technical University of Sofia*
- 2003 – 2007    **Communications technician**  
HIGH SCHOOL DIPLOMA  
*Technical School of Communications, Sofia*

### COMMUNICATION SKILLS

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

## PROJECTS ON GITHUB

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C++	<b>face</b> <i>Use OpenCV Haar cascades to identify persons.</i>
C++	<b>rocks</b> <i>Multiclass classification. Uses dlib.</i>
C++	<b>silhouette</b> <i>Human silhouette extraction using HOG descriptor, SVM classifier and adaptive background thresholding.</i>
C	<b>micli</b> <i>Micro CLimate controller, an autotuning PID regulator.</i>
C	<b>megaboot</b> <i>Simple atmega168 bootloader.</i>
C	<b>cgetset</b> <i>Generate getter/setter methods. Self-contained.</i>
PYTHON	<b>rtplot</b> <i>Realtime temperature plotting utility.</i>
PYTHON	<b>gender</b> <i>Guess the gender of the author of a short paragraph.</i>
HASKELL	<b>voiceid</b> <i>Identify different persons via speech.</i>
LATEX	<b>rpg</b> <i>A role-playing game.</i>
INVENTOR	<b>gearbox</b> <i>Gearbox design and technical drawings.</i>

## WORK EXPERIENCE

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04 JAN 2016 - 07 SEP 2017

Euro Games Technology

### *C++ Linux developer*

Developing core functionality for a large C++ system, subject to certification, legislation and money handling. Some tasks:

- GNU utilities, Linux sockets, IPC, multithreading, bash scripting
- C++14, CMake, clang-tidy
- OpenGL, SDL2

Some projects:

- bill acceptor device firmware - handle money responsibly
- support and evolve a video API for about 200 internal clients
- script gitolite hooks and communicate their purpose to colleagues

20 MAY 2013 - 21 MAR 2015

Antelope Audio

### *C++ ARM developer*

Implementation of a complex audio processing algorithm in C++ for ARM. Audio signal processing design (z-transform, filters, impulse response, amplitude and phase diagrams). GUI design with Python and Qt. OpenOCD and hardware considerations.

12 FEB 2013 - 13 MAY 2013

Johnson Controls

### *C embedded developer*

Embedded C, concurrency, unit tests and documentation.

22 AUG 2011 - 15 JAN 2013

MM Solutions Ltd

### *C++ algorithms for Android*

C++ with Boost, OpenCV etc. libraries for ARM. GNU/Linux and git. Digital video processing in 3D environment (quaternions, field of view, image recognition, gyroscopes).