

# Miroslav Vitkov

## Curriculum Vitae

### TECHNICAL SKILLS

---

EXPERT \* C++14  
\* C11  
\* git

PROFICIENT \* (embedded) GNU/Linux,  
Bash scripting  
\* python3, matplotlib,  
numpy, sklearn, pandas  
\* CMake, GNU make  
\* L<sup>A</sup>T<sub>E</sub>X  
\* R  
\* Bayesian inference  
\* Markov chains,  
hypothesis testing

EXPERIENCED \* MatLab  
\* digital and analog  
hardware design  
\* USB, I2C, SPI firmware  
\* Autodesk Inventor,  
SolidWorks, CATIA  
\* SDL2, OpenGL  
\* Haskell  
\* OpenCV  
\* PyQt  
\* Bayesian inference  
\* Deep learning  
\* Computational linguistics

 Behlertstrasse 37, 14467 Potsdam,  
Germany  
 (+359) 0895 735 164  
 sir.vorac@gmail.com

### EDUCATION

---

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

---

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

## PUBLIC PROJECTS

---

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

## WORK EXPERIENCE

---

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 of the daily tasks include:

- GNU utilities, Linux sockets, IPC, multithreading, bash scripting
- C++14, CMake, clang-tidy
- OpenGL, SDL2
- Bill acceptor device fail-safe communication and control
- scripting for gitolite server administration

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).