

Curriculum vitae

PERSONAL INFORMATION

Anatoly Besplemenov

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Industrial automation engineer, professional interests:

- embedded systems - hardware design and programming (preferably in C, partly in Assembler);
- Android applications – mostly interacting with surround physical world in Java at Android Studio;
- design and implementation of sensors and actuators;
- creation of mechanisms, apparatus, units and interactive devices;
- study and application of neurochips;
- self-learning computer systems and genetic programming.

WORK EXPERIENCE

01/01/2015–Present:

an Engineer in R&D field working on my own projects and some tasks for the Quant enterprise (www.euromach.ru).

For instance, Datamatrix Scanner (work in progress). It's based on Kendryte K210 RISC-V 64-bit 2 cores SoC with AI extensions and industrial-grade camera MT9V034 with Global Shutter. Next version is planned to be at PCB 20x20mm in size.

[Video here](#)

- Studied DL with Keras and Python, Neural Networking for models creation, training from scratch and with transfer learning and implementation at the Edge at development boards based on the Kendryte K210 RISC-V 2-cores 64-bit chip with AI extensions. This work was performed in so-called Non-OS mode, i. e. “bare metal” in C language. Such a little and cheap systems can do real-time image and voice recognition using on-board video cameras and microphones. [Video on Youtube](#). Also, these models may work as well in Tensor Flow Lite Android apps. [Video on Youtube](#)
- Studied the neuromorphic memory technology implemented in the NM500 chip and Intel Curie processors developed by [General Vision Inc.](#) These chips can be learned “on-the-fly” in real time. [Video on Youtube](#).
- Some things for medical purposes: DIY Blood Oxygen sensor and ECG displaying/monitoring/recognition device.
- participated in the creation of a system for product labeling and blotting accounting, applications for Android OS powered devices and firmware for connected custom hardware based on microcontrollers.
- has developed the Bottle Plotter: some mechanics parts, electronics, software (for Atmel MCU and the extension for the Inkscape graphic editor on Python). Has made a dozen of plotters for testing, prepared documentation and the plotter for mass production. [Video on Youtube](#).
- made an Android Wear OS apk for real time automobile data reading/displaying via Bluetooth (Pulta the OBDII Watchface)

[Video is here.](#)

- learned and programmed OpenGL ES 2.0 3D graphics for Android Wear and tools for OpenGL ES 2.0 Data Arrays creation. Made the Quasar3D Watch face. [The app page](#)
- ARM Cortex A-53 bare metal (non-OS) 64-bit four cores programming using Raspberry Pi A/B 3+.
- learned MRE SDK 3.0, Mediatek LinkIt IDE for IoT and programming phones (Vphone S8 based on Mediatek's MT2502 SoC).

01/06/2012–31/12/2015 Head of Information Protection Group

Smart City Vladikavkaz, Vladikavkaz (Russia)

- organized the work for information protection
- developed packets of documentation corresponding the federal laws
- participated in forums and meetups on federal level for defining strategies in the sphere of the information security

01/01/2011–30/05/2014 Embedded engineer

Self-employed, Vladikavkaz (Russia)

- learning ARM processors ARM9 and ARM Cortex-A8
- studying no-OS bare metal programming
- making the StartOS operating system, more info at: [StartOS for ARM](#)
- connecting hardware periphery (sensors) via various protocols

02/12/2001–31/12/2010 CEO

Quant (afterwards renamed into Euromach), Vladikavkaz (Russia)

- personnel management (up to 45 employers)
- attracting clients, buyers, suppliers
- production promotion, sales, service, maintenance
- providing all the equipment working
- developing hardware & software for computers, micro controllers, CNC routers

17/03/1989–30/06/2002 Senior Engineer

Informatics and Analytics Department of Government of Republic RSO-Alania, Vladikavkaz (Russia)

- maintenance the computers, data bases, networks
- hardware and software development
- information protection
- learning personnel

01/10/1983–17/03/1989 Senior Engineer, Chief of the CAD Bureau

Scientific Research Institute of Electronic materials (NIIEM), Vladikavkaz (Russia)

- maintenance of computers, measuring devices
- projecting automatization systems (SCADA) for technological lines
- developing sensors and executive mechanisms
- exploiting the CAD systems
- developing programs for scientific modelling/calculations

EDUCATION AND TRAINING

01/06/1985–20/07/1985 Computer service/developer engineer

Studying Producing Combine, Donetsk (Ukraine)

- computer engineering
- PDP-11 hardware & software

- Assembler for PDP-11

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01/09/1977–30/06/1982 [Electrical Engineer in Field of Industrial Automation EQF level 6](#)

North Caucasian Institute of Mining and Metallurgy (State Technical University), Vladikavkaz (Russia)

- Mathematics
- Programming languages
- Analog Computers
- Algorithms
- Digital Computers
- Technical Drawing
- Theoretical Mechanics
- Theoretical Bases (fundamentals) of electro-techniques
- Electric Machines and Apparatus
- Industrial Electronics
- Physics
- Automation theory

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PERSONAL SKILLS

Mother language Russian

Other language(s) UNDERSTANDING SPEAKING WRITING

Listening Reading Spoken interaction Spoken production

English B2 B1 B1 B2 B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

Common European Framework of Reference for Languages

Communication skills - make good contact and kind relations with almost all kind of people

Organisational / managerial skills - good team leading skills gained as CEO of "Quant" enterprise (about 45 people)

- organisational skills gained as Chief of the CAD group

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Job-related skills Computer platforms:

- IBM PC AT, Intel x86, Atmel AVR micro controllers, Palm Handheld (Motorola MC68328), ARM9, ARM Cortex-A8, Android phones, tablets, smart watches.
- Linux – only tried to compile sources for getting Images for FriendlyARM mini2440 boards.
- uC/OS RTOS from Micrium.
- Nucleus RTOS by Embedded Software Division of Mentor Graphics.

Programming Languages:

-Assembler for Intel, Motorola, Atmel AVR, (ARM on demand), C, Java for Android, PHP, HTML, (Python, Perl on demand), Wiring (Arduino, Processing IDE).

- *can write programs which are independent of the operating system for IBM PC (Intel x86) and ARM. They work with Graphics, Sound, Networks and other external devices.*

- *can make self-modifying and data-driven programs on low level (machine codes)*

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Computer Graphics:

- Open GLES2.0 for Android

CAD/CAM:

- EZ-CAM, Art-CAM, K-CAM, Rhinoceros 3D

Engineer electrician

- certified for working with industrial power electric hardware up to 1000 Volts

Electronics

- developing electronic schematics, devices, working prototypes, small quantity production of PCB with ICs, MCUs, solid state lasers, discrete elements

Mechanics

- projecting mechanical apparatus and machine parts

- making technical plans/drawings both in 2D and 3D
- producing CNC programs and executing them on CNC routers
- calculating G-code for CNC in real time and output it onto milling machines

Physics/Mathematics/Automation

- strong understanding and implementing of physical processes in real World, transferring them into mathematical models for further processing and making devices with behavior based on them

Programming IDEs:

- ADS1.2 - Metrowerks CodeWarrior for ARM Developer Suite v1.2.
- EmBitz IDE for ARM
- ARM Keil RealView uVision.
- Android Studio
- MRE SDK V3.0.00 for MeadiaTek
- LinkIt Development Platform for IoT
- Eclipse for Android
- Atmel AVR Studio
- IAR

Software:

- CorelDraw – for simple 2D graphics.
- Rhinoceros 3D – 3D modeling for CNC, design 3D shapes and project visualization.
- SIM Card ToolKit
- EZ CAM
- Programs for electronics schematics creation (several)
- Programs for PCB producing (drawing and making on CNC)

ADDITIONAL INFORMATION

Certifications

Invention:

The Laser Printer with Direct method for labels and packing.

Russian Patent #2475363 <http://www.findpatent.ru/patent/247/2475363.html>

Publications

"Mechanical Scanning Running String" on Atmel AVR in "Radio" magazine, Russia, 2009, February issue.

"Encoder Based on Optical Sensor from Computer Mouse" EDN UBM, April, 2015.