Rytis Karpuška

Address: Paukščių tako 72, Vilnius, LT12189
Date of birth: 1992-09-30
Phone.: +37061476947
E-mail: rytis.karpuska@gmail.com

About me

Since my childhood I was interested in exact sciences. When I was 11-12 years old, I got interested in physics, but in a while from all of the branches of physics - electronics became the most interesting. I started soldering simple devices like LED blinkers, audio amplifiers etc. After a few years I came across microcontrollers and then I wrote my first assembler program which was capable of turning on LED. That got me hooked up with programming and since then I almost always have some kind of freetime project related to programming.

Education

2011 - 2015 University of Vilnius Bachelors degree in Software Engineering - University of Vilnius

First and second semesters - 90+% Average

2011 Andrew Ng online course "Machine Learning". *http://ml-class.org*

Professional experience

2011 - Now JSC "Elektromotus", Žirmūnų g. 68, Vilnius, Lietuva
Architect, Software developer

Projects

2007 Obstacle avoiding robot for "Infobalt 2007" excibition.
http://blog.elektronika.lt/robotai/2007/10/28/reportazai-is-infobalt2007/

This is one of the most interesting works from my childhood. Robot was controlled by AVR ATmega microcontroller, and had some IR sensors for obstacle detection.

Technologies: AVR, GCC.

2011 - 2012 Battery Management System "Emus BMS"
http://www.elektromotus.lt/lt/produktai/bms.html

This Battery Management System is JSC "Elektromotus" product. I was one of the main programmers for this system in 2011. One of the most notable usages of this system is "ACCIONA" team in Dakar rally.

Technologies: AVR, svn, GCC, Linux, Qt4.

2012 - 2013 Electric "Smart fourtwo" conversion kit ECU.
http://grynas.delfi.lt/tv/lietuviu-perdarytas-elektromobilis-100-km-nuvaziuoja-uz-7-litus.d?id=61776195

During this JSC "Elektromotus" project electric conversion kit for "Smart fortwo" car has been developed. I have designed and programmed firmware for main ECU unit which controlled engine, gearbox, cooling and communicated to other systems over CAN bus.

Technologies: ARM-Cortex M3, Linux, GCC, git, CAN.

2014 - 2015 Sensor network for Norvegian railways contact wire monitoring.

During this JSC "Elektromotus" project a custom wireless sensor network system has been developed for acceleration and rotation measurements of contact wire. Due to high requirements for power consumptions and radio distance - custom variable latency radio network protocol has been developed to allow radio hardware to be in low-power mode most of the time. Modified version of sliding window protocol has been impleneted to allow reliable data transmission over the network. Communication stack has been implemented in ARM Cortex-M3 and also as a linux kernel device driver. Whole system has the ability to be monitored over the internet.

Technologies: ARM-Cortex M3, Linux kernel device drivers, GCC, git, MEMS, 2.4Ghz radio, Raspberry pi, GSM, VPN, VPS.

2013 - Now Quadcopter controlled over internet.
https://github.com/jauler/Quadcopter

This is my current personal freetime project. I have developed all of the flight and stability algorithms. Currently first flight tests are being performed.

Technologies: ARM-Cortex M4, GCC, git, MEMS, Raspberry pi, GSM.

Skills

- **Programming languages**

  Assembler, C, C++ - 4 years expereince in professional environment, 8 years including hobby usage.
  Octave, Matlab, Python, Bash - Frequent usage for scripts in professional and hobby needs.
  Java, Ruby, html, css, sql, latex - Used for personal needs.

- **Other**

  Linux - 7 years of usage for personal purposes, some experience in linux device drivers development.
  git, svn - 4 years of profesional and personal usage.
  vim - 2 years of profesional and personal usage.

Interests

- **Embedded systems, 3D graphics, machine learning;**
- **"Encounter" urban games;**
- **Driving;**