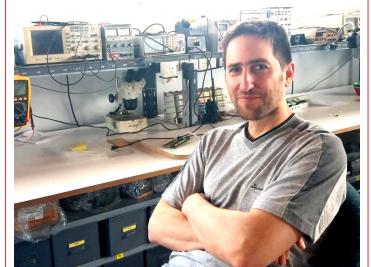


Pablo Slavkin

Resume

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13/12/1976



"In the tools, as in the instruments, what matters is the artist"

Presentation

I'm an electronic engineer from School of Engineering and Technology ITBA, recently graduate as Specialist in Embedded Systems and studying a Master in Embedded Systems from University of Buenos Aires, UBA.
I developed my career working in product development area of several national companies and in research in state institutions.

I was in charge of an electronic engineering studio offering electronic design and production services and I'm currently working as a contract/freelance electronic engineer. developer.

I work daily designing embedded electronic equipment executing tasks such as:

- Taking requirements and planning acceptance tests of hard and soft.
- Schematic design, PCB, simulations, assembly, 3D modeling and machining.
- Coding for real time in C / C ++ in bare metal or over RTOS.
- Bash and Python scripting over Linux and embedded Linux.
- Codification and execution of the unit tests and management of continuous integration tools.
- Assembly and start-up of prototypes and assembly line documentation.

I am very pragmatic, committed and enjoy solving complex problems in a creative way by exchanging ideas with my peers I prefer down-top developments using Agile concepts to keep the product functional from the beginning.

I have an electronics workshop showed in figure ?? and in the [video](#), with tools as:

- Assembly line of SMD/TH plates, pasta stencil, pick and place, reflow oven and wave soldering machine.
- Reworking and manual welding tools.
- Stock of SMD and TH materials of current and specific use.
- CNC machining center.
- Machine for cutting and laser engraving.
- Several machines for 3D printing.
- Generators, Oscilloscopes and Advanced Instrumentation for measurement and diagnosis.
- Electronic tools for firmware development.

These tools, my experience, technical ability and frequent academic updating allow me to unwrap in most instances of the development of a professional embedded electronic equipment.

Just follow the links in each section to see videos pdf's and detailed information.

You could check my up-to-date resume [here](#).

Education

2019–2021 **Master's degree in Embedded Systems** , UBA - University of Buenos Aires , Buenos Aires , In course .
[See program](#)

2018–2018 **Specialization in Embedded Systems** , FIUBA - University of Engineering of Buenos Aires , Buenos Aires , Average 9.33 .
[See program](#)



figure 1: Development lab at Bariloche, 2019

- 2007–2016 **Doctorate in Engineering**, *UTN - National Technological University FRBA*, Buenos Aires, Average 10 on 3 approved subjects + 3 late due .
Mention Digital processing of images and signals. Suspended by moving to another city. [See program](#)
- 1996–2005 **Electronic Engineering**, *ITBA - Technological Institute of Buenos Aires*, Buenos Aires, Average 6.5 .
[See program](#)
- 1990–1995 **Electro Mechanical Technician**, *ENET N°1 Brigadier General Pascual Echagüe*, Concordia, Entre Ríos, Average 8.5 .
- 1982–1989 **Primary School**, *Velez Sarsfield School*, Concordia, Entre Ríos, Average 8.5 .

Experience

Professional

- 2020–Present **Lead Embedded Software Engineer**, *Novo Space, EE.UU, Argentina*.
I work on topics as low level firmware, real time coding, bootloaders, linux embedded and bringup of new complex hardware boards. I work remotely using Teams, Jira and related tools.
- 2020–2020 **Design and development of BLDC power stage**, *Engineered Arts, England*.
I work as a hardware engineer, making the electronic design, choosing components and topology for the power stage of a new BLDC servo drive. I work remotely with a team of specialists.
- 2019–Present **Freelance Electronic Engineer**, . . .
Personal entrepreneurship Electronic design services, hardware, firmware and electronic equipment.
- 2019–2020 **Development of a PMSM servomotor controller**, *Nanocut, Moldavia*.
For a company in the industrial machinery field, I work in the development of an integrated servo controller for a permanent magnet synchronous motor. It'll be used for the improvement of the actual machinery. [See portfolio](#).
- 2019–2019 **Consultant and CNC software development**, *Wolfcut, Valencia, España*, .
I worked in the implementation of a production line management software tool. I've also developed a plugin for improve the capabilities of the CNC software, adding an automatic tool changer, an automatic tool measurement, and others features. [See portfolio](#).
- 2011–2019 **Development and production of electronic equipment**, *Grupo Noto*, . . .
I develop and manufacture a whole line of aesthetic electro medicine electronics equipment, hardware, firmware and production. [See portfolio](#).
- 2012–2019 **Development and production of electronic equipment**, *Piscina Natural*, . . .
In conjunction with the company was developed a system for the generation of chlorine from saline water was developed to keep the pools clean. [See portfolio](#).
- 2011–2016 **Consultant and developer of electronic equipment**, *Softron*, . . .
Consulting and development of electronic equipment and solutions for energy measurement and monitoring using Zigbee wireless and GSM technologies. [See portfolio](#).
- 2011–2017 **Consultant and developer of electronic equipment**, *Grupo Koner*, . . .
Consulting and development of equipment and electronic solutions for the automatic vehicle location, AVL. I worked mainly in the development and integration of an RFID card reader for drivers registration. [See portfolio](#).

2005–2019 **Director in engineering company** , *disenioconingenio* , , .
Personal entrepreneurship Engineering study that offers electronic design services to companies, with ability to develop and manufacture electronic equipment, hardware, firmware, software, mechanics, PCB routing, assembly of PCB's SMD and TH, 3D printing, CNC machining, laser cutting and engraving and commercialization of equipment for access control RFID, monitoring of Ethernet temperature, automation of machines, converters of protocols, etc. [See portfolio](#).

2011–2014 **Consultant and developer of electronic equipment** , *Seconsat* , , .
Consulting and development of electronic accessories for the AVL business. I work mainly in a new multi sensor wireless dongle for AVL integration. [See portfolio](#).

2003–2005 **Electronic equipment developer** , *Digicard* , , .
Company referring to the national level in the area of access control. Work was done on the development of an RFID reader of 125khz for the line of access controllers. I participated in all the stages since the requirements request, schematic design, PCB layout, prototype, start-up, firmware, and production documentation. The reader is actively marketed by the company. [See portfolio](#).

2002–2003 **Firmware developer for microcontrollers** , *Pump-Control* , , .
Company dedicated mainly to the design, development and production of electronic controllers for the distribution of hydrocarbons. Work was done in the area of firmware development for 8bit microcontrollers of the Atmel line, implementing 1-Wire communication protocols, access control and dispenser control fuel.

Teaching

2020–2020 **Digital signal processing, introduction course**, *University of Buenos Aires, UBA*.
Within the framework of the Master in Embedded Systems of the UBA, MSE, a course on digital signal processing applied to embedded systems was taught, including subjects such as: quantization, convolution, correlation, discrete Fourier transform (DFT,FFT).[See program](#).[See recorded classes](#).[See course material](#)

2017–2017 **Introduction to robotics** , *Siglo XXI School* , , .
A day of introduction to robotics was given for students from the third to fifth year, showing the history, basic concepts and culminating with a practice in different commercial platforms [See certificate](#).

2004–2004 **Altera FPGA programming intensive course using Quartus II** , *ITBA* , , .
An introductory course with practical activities was carried out using an Altera evaluation board. [See material](#).

Research

2015–2016 **Scholar in the National Atomic Energy Commission**, *CNEA*.
I worked as a fellow in the completion of a fully developed PET (Positron Emission Tomography) in the center on which the doctoral thesis plan is developed. Particularly, work is done in the area of acquisition and processing of digital signals on high performance FPGA. The scholarship is terminated doubt as a move to another city. [See portfolio](#), [see material 2015](#) , [see material 2016](#).

2009–2009 **Assistant in the Research Center of Lasers and Applications**, *CITEDEF*.
I worked as an assistant of Dr. Jorge Codnia and Lic. Laura Azcárate in the assembly of a flow condenser, which with the help of a laser produces isotopes of interest, and the first advances in a new mass spectrometer of flight time. [See material](#).

Courses and seminars

2020 **LATAM 2020 Entrepreneur Competition** , *MIT - ITBA* , 8hs , I participated as a jury of the LATAM 2020 contest, organized between MIT and ITBA. I analyzed innovation and entrepreneurship projects from Latin America. [See certificate](#) , [See details](#) .

2018 **LATAM 2018 Entrepreneur Competition** , *MIT - ITBA* , 8hs , I participated as a jury of the LATAM 2018 contest, organized between MIT and ITBA. I analyzed innovation and entrepreneurship projects from Latin America. [See certificate](#) , [See details](#) .

2017 **LASCAS 2017 Tutorials: Dependable Digital Systems and Fault Tolerant FPGA Design** , *INVAP, Bariloche* , 8hs , .

2017 **SASE 2017, Argentine Symposium of Embedded Systems** , *UBA* , 8hs , [See certificate](#) .

2016 **SASE 2016, Argentine Symposium of Embedded Systems** , *UBA* , 8hs , [See certificate](#) .

2015 **Doctorate PSI Meeting: Models, Simulation and Fabrics Engineering** , *Favaloro, GIBIO 2015* , 8hs , [See certificate](#) .

2015 **Advanced techniques for digital design, Guillermo Jaquenod 2015** , *UNICEN, National University of the center of Buenos Aires, Argentina* 20hs , [See programa](#) , .

2015 **SASE 2015, Argentine Symposium of Embedded Systems** , *UBA* , 6hs , [See certificate](#) .

- 2015 **Advanced techniques of digital design**, *UNICEN*, 40hs, Advanced virtual course of techniques of digital design by engineer Guillermo Jaquenod .
- 2013 **SASE 2013, Argentine Symposium of Embedded Systems**, *UBA*, 18hs, .
- 2012 **Introduction to Latex**, *UP Palermo University, IEEE-UP Student Branch*, 2hs, [Ver certificado](#) .
- 2012 **First days of signal and image processing**, *UTN, GIBIO 2012*, 8hs, [See certificate](#) .
- 2012 **SASE 2012, Argentine Symposium of Embedded Systems**, *UBA*, 18hs, .
- 2011 **SASE 2011, Argentine Symposium of Embedded Systems**, *UBA*, 18hs, .
- 2010 **SASE 2010, Argentine Symposium of Embedded Systems**, *UBA*, 18hs, .
- 2008 **Conference on wireless technologies of Digi RF**, *EDE2008 Electronic Design Expo*, 6hs, [See certificate](#) .
- 2007 **Practical theoretical course of screen printing oriented to the manufacture of PCBs**, 32hs, [See certificate](#) , .
- 2007 **Analog performance seminar using Silabs microcontrollers**, 8hs, [See certificate](#) , .
- 2006 **Launch of Freescale RS08KA microcontrollers, accelerometers and sensors**, 8hs, [See certificate](#) , .
- 2006 **Releases Freescale Coldfire microcontrollers 32 bits**, 10hs, [See certificate](#) , .
- 2004 **Rabbit microprocessors and Dynamic C**, 24hs, [See certificate](#) , .
- 2002 **Practical theoretical course IA, Artificial Intelligence**, *ITBA*, 18hs, [See certificate](#) .
- 1995 **Amateur radio course with licensing LU9JGM**, *Radio Club Concordia (LU9JJ)*, 48hs, [See certificate](#) .

Awards

- 2020 **Codility Palladium Challenge, Codility**, *Golden Award*, , .
[See certificaue](#).
- 2002 **Initiation in research and development I+D ITBA**, 1th prize, , .
Design and Simulation of a pipeline-structured Floating Point Unit for high performance general purpose processors [See material](#).
- 2001 **Battle Tek robots championship, ITBA Ingenio en Acción**, 3th prize, , .
Discotech Robot A fight robot was designed and manufactured based on a high speed rotating disk with 2 protruding edges that impact against the adversary and a pneumatic ramp. [See certificate](#), [see news](#).

Works and Publications

- 2018 **Three Axis CNC Machine Controller**, *Specialization in embedded systems*, , .
Final work of the specialization course in embedded systems, Director: Ing. Juan Manuel Cruz [see material](#), [see presentation](#), [see public defense](#), [see videos](#) .
- 2010 **Smoothing of images by inhomogeneous diffusion**, *Biomedical image processing*, *UTN*, , .
Final work Processing of biomedical images, Tutor: Dr. Castro [See material](#) .
- 2008 **Study of photo thermal techniques applied to the measurement of gas flow.**, *CITEDEF*, , .
I was presented under the tutelage of Dr. Francisco Manzano and as goal of approval of Optoelectronics II. [See material](#) .
- 2004 **Design and implementation of a dynamic screen based on 3200 filament lamps with 16 gray scales and 20fps updatable by ftp.**, *LampMatrix, Thesis, ITBA*, , .
Under the tutelage of Professor Villamil, an advertising screen based on filament lamps was designed and manufactured entirely. [See video](#), [See material](#) .
- 2003 **Design and Simulation of a pipeline-structured Floating Point Unit for high performance general purpose processors**, *JAIIO 32th Argentine Conference on Informatics and Operational Research*, , .
[See material](#) .
- 2003 **Selection of the Optimum Stage Number in Pipelined Floating-Point Units**, *CACIC, Argentine Congress of Computer Science*, , .
[See material](#)

Technologies Experience

Programming Languages

Advanced	C, C++, Python, ASM assembler, Verilog, VHDL, Octave
Medium	C#, Pascal, bash, makefiles, openHab, flask, Javascript, HTML, css,
Basic	Java, php

Operating Systems

Advanced	Linux (Debian, Crunchbang, Bunsenlabs, Ubuntu, Slackware), FreeRTOS, Windows(Win10, Seven, XP, NT, Server2003)
Medium	FreeBSD, Linux Manjaro
Basic	OSEK, plan9, VXWorks, RTems

Outstanding Computer Software

Advanced	vim ¹⁵ ssh ipython Allegro PCB Router gnumeric Prontiface LinuxCNC Borland C++ Builder openocd Libero 12.x icarus cups cryptsetup gnuplot	git ⁸ anaconda screen Orcad16 Design CIS mutt Freecad Rhinoceros gcc ncurses Softconsole ghdl Swat Wireshark LibreOffice	mercurial pyfda tmux ⁶ Orcad16 Layout \LaTeX Slic3r RhinoCam gdb cdk Xilinx (ISE y Vivado) cocotb Samba VirtualBox Freecad	bash jupyter Kicad Orcad16 Pspice Cura Mach3 Flash MX pudb Microsoft Visual Studio gtkwave redmine ceedling pass
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Medium	OpenOffice, Eclipse, Matlab, Jenkyns, Mathcad, qemu, Arduino IDE, svn, ffmpeg, Openscam, Webadmin, SonarQube
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Basic	Quartus II, Delphi, Blender, Krita
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Experience in software patterns and techniques

Advanced	linux device drivers device tree Das U-Boot buildroot
Medium	
Basic	Yocto

Communications protocols and digital techniques

Advanced	Ethernet lwIP TCP IPv4 SNMP SMTP NTP ARP UDP SCI SPI I2C LVDS USB FS/HS Zigbee RFID PWM ADC DAC 1-Wire RS232 RS485 PoE+ MQTT
Medium	IPv6 CAN 6LoWPAN IEEE 802.15.4 I2S Radius Modbus
Basic	HTTP Lora MIPI

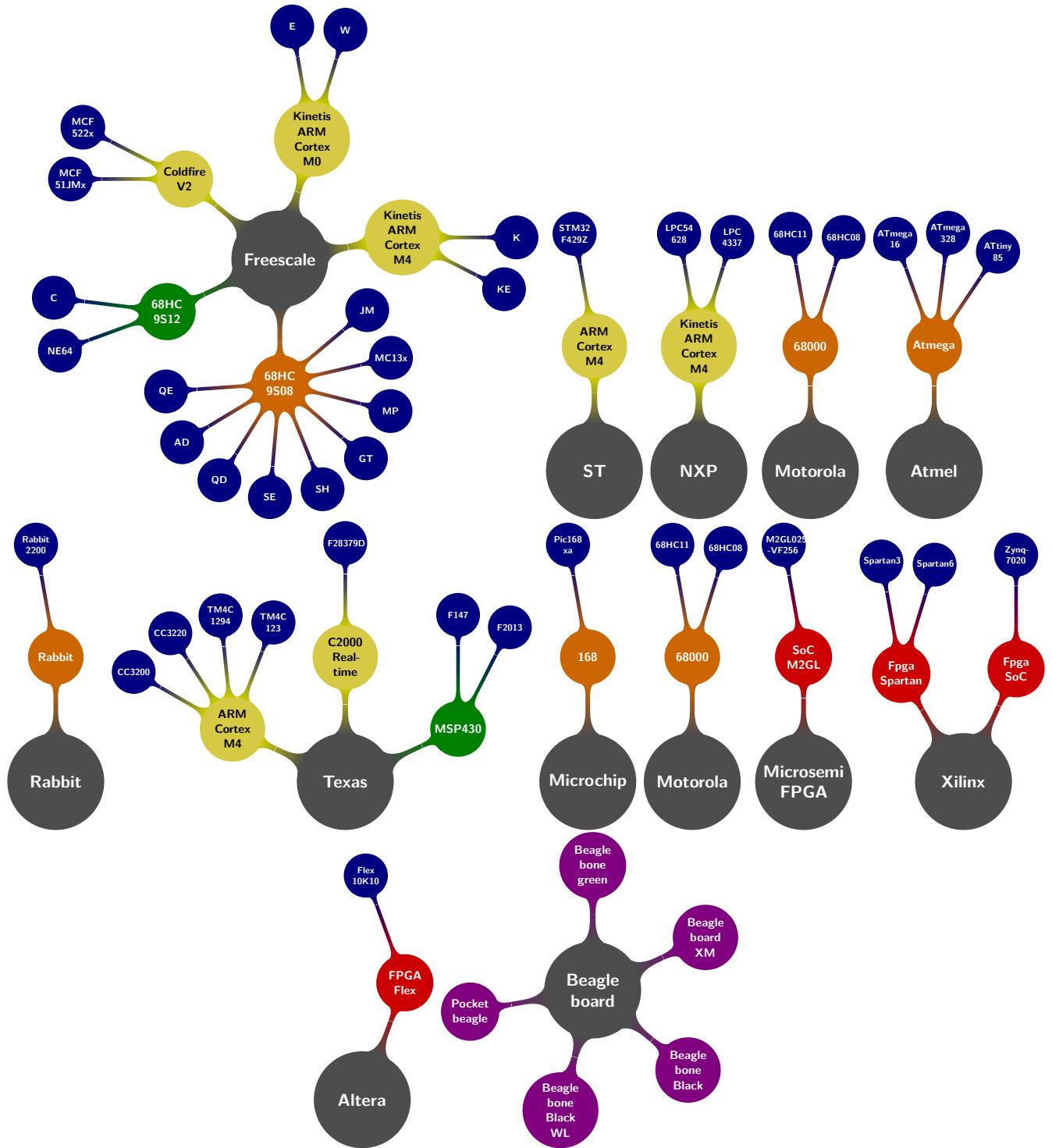
Other technologies of interest

Advanced	Edding CNC macro programming language, electronic board SMD mounting line, manual PCB soldering, infrared oven PCB soldering, FDM 3D printer, rigid silkscreen, PCB silkscreen, CNC machine handling, laser cutter handling , machine tool handling
Medium	PCB manufacturing, arc welding, lathe handling
Basic	

Microcontrollers, microprocessors and FPGA architectures experience

At least one project developed using one of these:

Colors ● 8 bits ● 16 bits ● 32 bits ● FPGA ● SBC (single board computers)



Idioms

Spanish	Oral/Reading/Writing Advanced
English	Reading Advanced Oral/Writing Medium
Hebrew	Reading Medium, Oral/Writing Basic
Russian	Reading, Oral and Writing Basic

Native tongue
TOEIC 2005–785 See certificate
Full Hebrew primary school
Personalized curse at Moldova

Sports and recreational activities

2016–2017 **Basketball**, Bariloche, Nahuel sport club, [facebook](#).
 Training in the club's first division squad.

- 1983–1994 **Basketball** , *Concordia* , J.N.Bialik , .
Training from mosquito category to be part of the first division squad.
- 1995–2004 **Basketball** , *Buenos Aires* , University Basketball, ITBA .
Training on the campus throughout the whole race.
- 1994– **Cycling** , , , .
- Presente Competition in cross-country category sub-23, competition in category sub-30 trialbike, amateur cycling to the present.
- 2014– **Guitar** , , , .
- Presente Amateur learning of electric guitar and music.

Other activities and interests

- Physics
- Astronomy
- Motorcycling
- History of science
- Philosophy
- Cycling

Portfolio

Engineered Arts

I've worked on a new high precision, mid power BLDC power stage board. I've made the schematics, I've chosen the parts and finally I've routed the PCB board in Kicad 5.0 over 4 layers as I shot in ??

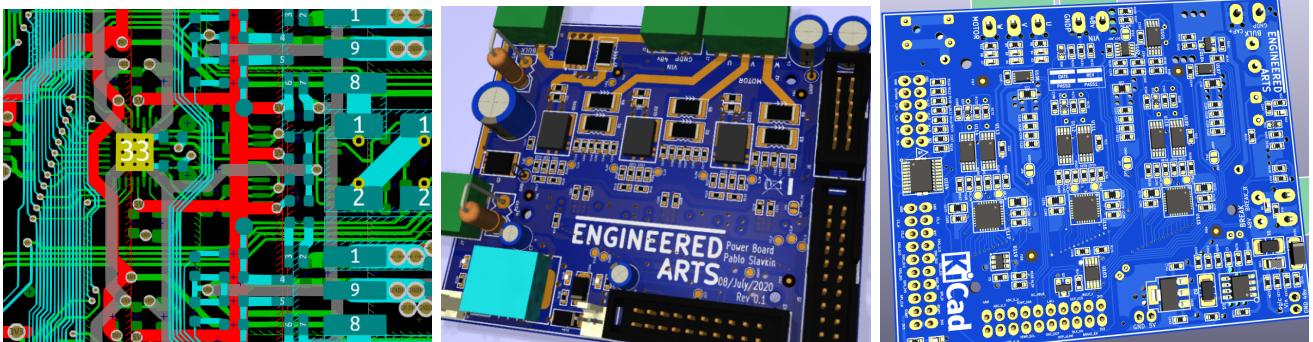


figure 2: PCB power stage for high precision mid power servo BLDC motor for Engineered Arts. [see rotating 3D board](#)

Nanocut 2.0

Working for Nanocut company at Moldova in second quarter of 2019 I've developed a PMSM (*permanent magnet synchronous motor*) servo motor controller using a Texas Instruments development board with a C2000 real-time microcontroller. I've implemented a torque, speed and position closed loop control algorithms using a relative optical encoder as a feedback. I've implemented a FOC vector control method using Clarke / Parke transforms and three nested PID's. This work will be the hardware and firmware base for a new generic servo drive for using in all the company's machines. Figure ?? shows the hardware tools and the algorithms implemented. Figure ?? shows the prototype running



figure 3: Development tools and algorithm output plots of the PMSM servo driver

at Nanocu's labs.



figure 4: Mechanical prototype used for the PMSM algorithm test, torque, speed and position

Nanocut 3.0

Working for Nanocut company at Moldova in first quarter of 2020 I've design the hardware for the new servo drive. I've made the schematics, layout routing and 3d model of the equipment. I've used Kicad 5.0 for all the process and complete the design using 6 layers traces of 6mils/6mils, and vias of 0.3 mm min. There is the link of the public github project repository [repo](#) and these is a video showing the final model [video](#). The board has the following main capacities:

- Triple real time designed 32b 200MHz core procesar
- Differential isolated incremental encoder x2
- Differential isolated absolute encoder x2
- Differential isolated step direction input x2
- Isolated RS485 x1
- Isolated CAN x1
- Ethercat slave
- Ethernet
- Isolated current measurement using LEM x6
- Isolated voltage measurement x2
- Isolated PWM IGBT signals to x12
- Isolated alarm input x2
- Isolated brake output x2
- Isolated fan RMP measurement input x2
- Isolated sigma delta input x8
- Isolated NTC temperatura sensor x4
- Isolated 1-Wire bus x1
- SPI LCD interface for EVE touch screen modules or basic characters LCD
- Dual isolated power supply's
- Some others minor features

With these capabilities the board could drive two PMSM motors at the same time and many powerful possibilities. In the figure ?? I show some pics of the design process. In the figure ?? I show some pics of the final release.

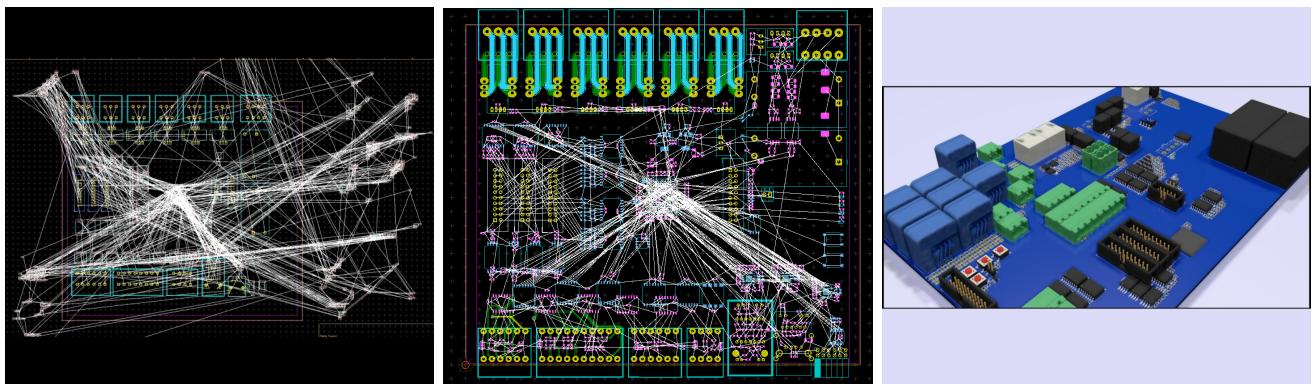


figure 5: PCB design stages at Nanocut Moldova for a PMSM servo drive.

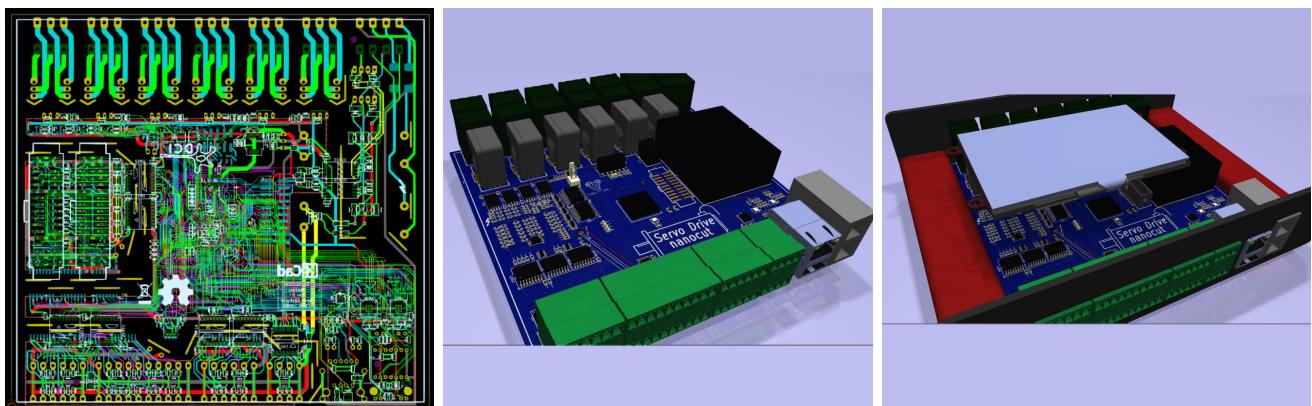


figure 6: PCB design release with a preliminary case at Nanocut Moldova for a PMSM servo drive.

In the figure ?? I show some pics of the mounted board.



figure 7: Manufactured and mounted board in OurPCB factory for the PMSM servo drive.

Wolfcut

I've developed a HTML/WIFI remote control for a NK105 based CNC machine for Wolfcut.

I've used a Beagle Bone Green Wireless embedded computer that behaves as an USB mass storage for file exchange eliminating the need of connecting and disconnecting a pendrive.

I've design a small Beagle break board that connect in between the keyboard cable and emulate the actual keyboard. I've compiled the GCC for the ARM using crosstool-ng, then compile the linux kernel using the GCC generated, a custom file system using buildroot.

I've used the new style configFS to emulate the mass storage profile, and configured an apache deamon for the web GUI and php support for the backend interacion with a C code that do the actual communication with the NK105.

Figura ?? shows the implemented layer model and some captures of the web page.



figure 8: Software layer model and the web page designed to remote control the NK105 CNC controller through WIFI.

Figure ?? shows some captures of the compilation setup in action.

```

config - Linux/arm 4.20.8 Kernel Configuration
-- USB Gadget Support
[ ] Debugging messages (DEVELOPMENT)
[ ] Debugging Information files in debugfs (DEVELOPMENT)
[ ] Maximum VBUS Power usage (2500 mA)
[ ] Maximum VBUS Power usage (2500 mA)
[+] Serial gadget console support
[+] Serial gadget bulk transfer buffers
[+] USB Gadget Functions: configurable through configfs

.crosstool-NG Configuration
crosstool-NG Configuration
Paths and misc options -->
Target options -->
Toolchain options -->
Operating System -->
Binary utilities -->
C-library -->
C compiler -->
Debug facilities -->
Companion libraries -->

Buildroot 2019.08-rcl-00010-g4de0b10d57 Configuration
Buildroot 2019.08-rcl-00010-g4de0b10d57 Configuration
Target options -->
Toolchain -->
System configuration -->
Kernel -->
Target packages -->
Filesystem Images -->
Build options -->
Host utilities -->
Legacy config options -->

```

figure 9: crosstool-ng, kernel and buildroot setup, used in the wifi remote control of NK105

Noto Group S.A.

As a technological partner of Noto Group S.A I've developed and manufactured electronic equipment for electromedicine aesthetics among which stand out:

- Tripolar radiofrequency.