

Eugenio R. Peñate Fariñas

Telecommunication Engineer

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EDUCATION

2013	Telecommunication Engineering – <i>University of Las Palmas de Gran Canaria. Spain.</i>
2008	Electronic Engineering – <i>Polytechnic University of Catalonia. Barcelona. Spain.</i> <i>Transfer program CENECA (1 year). Intensification in Microwave and RF electronics circuits, and embedded systems.</i>

RELEVANT WORK EXPERIENCE

04/2014 – Actual	Electrical Engineer at RNR Associates. <ul style="list-style-type: none">– Product development, PCB design, system control, programming, debugging and testing.
02/2014 – Actual	Electrical Engineer at Glober Design. <ul style="list-style-type: none">– Product development, PCB design, system control, programming, debugging and testing.
03/2010 – 05/2011	Research Engineer in the IUMA-ULPGC. <ul style="list-style-type: none">– Design, manufacture and assembly of printed circuits boards. Reverse engineering, extracting the electronic circuit from PCB and redesign for manufacturing.
02/2008 – 06/2008	Internship in the Basic Communications Laboratory of ETSETB-UPC. <ul style="list-style-type: none">– Design and manufacture of radio frequency electronics circuits.

COMPLEMENTARY EDUCATION AND ADDITIONAL COURSES

- **Control of Mobile Robots.**
- **International Business Plan Competition.**
 - Paired with a business student from the University of Texas San Antonio to take a product we invented and promote it in the current market.
 - Wrote financial plan to consider break even points, contribution margin, and profitability potential in the current market.
- **How to Build a Startup.**
- **Mobile Robots.**
- **Artificial Intelligence for Robotics.**
- **Computer Vision.**
- **Machine Learning.**
- **Introduction to Artificial Intelligence.**
- **Introduction to Databases.**
- **Seminar, study and management of software tools for the simulation of RNAs: S / JNNS Toolbox and Matlab Neural Network.**
- **Computer Neural Networks.** – *Computer Science, ULPGC.*
- **Artificial Intelligence.** – *Computer Science, ULPGC.*
- **Introduction to Databases.**
- **Intermediate level of English.** – *Official Language School. Spain.*
- **Basic level of English.** – *Official Language School. Spain.*
- **Level II and Level III in New York Language Center.** – *Studies in the English as a Second Language (ESOL) program in New York City.*
- **Introduction to CISCO network management.** – *ULPGC.*
- **Electronic Engineering** – *Polytechnic University of Catalonia. Barcelona. Spain.*
 - Design of RF receiver, Microwave, RF Communication SystemOn-Chip, Real time embedded systems: RTOS, Linux and internet connection, Remote Control Systems, Automotive electronics, Simulations and Numerical analysis for telecommunications.

TECHNICAL SKILLS

- **Manufacture:** RF coil manufacture. Advanced PCB design using CAD tools (Altium Designer). PCBs manufacturing processes using chemical and milling line, single and double face, with solder mask and silkscreen. Multilayer PCB design. Through hole and SMD PCB assembly and soldering. Standard SMD, fine pitch SMD, QFN and BGA. Manufacture of masks for dispensing solder paste. Reflow soldering. Mechanical design using SolidWorks. Laser cutting machine.
- **RF and Microwave circuits:** Theoretical and practical knowledge of communications electronic. RF amplifiers, LNA, oscillators, PLL synthesizers, DDS, mixers, power amplifier, filters, transformers, modulators and demodulators. Design and construction of microwave circuits with ADS and Momentum. Construction of HF and VHF radios. Electromagnetic simulations and design of antennas with FEKO.
- **Analog electronic circuits:** BJT and FET technology. Amplifiers, feedback, oscillators, power supply, DC-DC converters, analog multiplier, operational amplifier, passive and active filters.

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- **Digital electronics:** Work with FPGA, programmable logic, embedded processor, combinational and sequential logic. NIOS-II and PicoBlaze.
- **Real time, embedded systems and RTOS:** uC/OS, Keil RTX, CMSIS-RTOS, FreeRTOS, embedded Linux. Real time concepts and patterns for embedded systems. Inter-task synchronization and communication. Modularizing an application for concurrency. Experience in developing low level drivers and concurrent applications for RTOS. Experience with microcontrollers: ARM Cortex-M3(LPC1769, LPC1313, LPC1343, LM3S101 y STM32F1), ARM Cortex-M4(TivaC and STM32F4 family), ARM7TDMI-S (LPC2000 family), ARM Cortex M0 (LPC1100), AVR 8bits (ATmega, ATtiny, ATxmega), 8051, Motorola 68HC11, PIC, MSP430, BeagleBone black and Raspberry Pi. Programming in C/C++ and assembler. RS232, RS485, I2C, SPI, CAN, USB, Ethernet, Timers, PWM, Motor Control, RTC, ADC, DAC, SDCard, Interrupts handling and DMA. Debuggers and emulators, JTAG, SWD and Trace.
- **Intelligent Systems:** Machine learning, lineal regression, logistic regression, regularization, neural networks, support vector machines, k-means and artificial intelligence.
- **Probabilistic Robotics:** Bayes filter, Kalman filter, EKF, Information filter, histogram filter, particle filter and Monte Carlo localization, Occupancy grid Mapping and SLAM: GraphSlam.
- **Programming in Linux and Windows:** Language C/C++, .NET, Visual Basic, Ada, Python and similar. MatLab, LabView. Hardware description Language: VHDL. Knowledge of Objective C for application development for iphone/ipad and Java for Android. Design of GUI applications in QT and Visual Studio for PC and embedded systems.
- **Digital Signal Processing:** LTI systems, implementation of FIR, IIR and adaptive filters in Matlab and C for embedded systems.
- **Telematics and Networks:** Theoretical knowledge about: Ethernet, FrameRelay, ATM, TCP/IP, PDH, SDH and OSI. Strong networking knowledge.
- **Laboratory tools:** Multimeter, oscilloscope, power supply, frequencymeter, signal generator, spectrum analyzer, vector network analyzer, milling machine LDK H100, SMD reflow oven LDK ProtoFlow S, semi-automatic pick & place machine LDK ProtoPlace S, BGA assembly LDK ProtoPlace BGA, air soldering station, clamping frame for metal and polymer solder paste stencils, CircuitCAM, BoardMaster, laser cutting machine IL3000.
- **Avionics Systems:** Air data systems, fly-by-wire flight control, inertial sensors, navigation systems, autopilots and flight management systems. ARINC 429.
- **Pilot:** More than 10 years flying RC fixed wing planes.
- **Others:** RADAR Systems. Fundamentals of antennas, antenna arrays and apertures. Design of radio links. Remote control systems based on infrared and RF. Robots microcontrolled. Sensor Conditioning. Sensory fusion. Hardware in the loop. Television systems. ICT. Raspberry pi, BeagleBone Black, linux embedded systems. High power designs for DC-DC and brushless motor controller. UNC20, TMS320VC5505 eZdsp, Spartan3A, Cyclone II. Text and graphic LCD, TFT. Pspice simulations.

LANGUAGES

English: High. Spanish: Native.

Projects

- **UAV Autopilot.** <http://prezi.com/pihnkubvztzk/uav-autopilot-eng/>.
The main objective is to provide a UAV with an autopilot system can fully control the aircraft in flight. The electronic system designed is capable of stabilizing an aircraft against turbulence by implementing a fly-by-wire flight control system, automatic and autonomous navigation and to follow a flight plan established. The system also allows you to change the flight plan in the air. It was designed and built a hardware prototype for control the aircraft, communication with ground equipment for telemetry and video transmission in real time. The onboard software designed involves the CSP, the BSP for the RTOS and the whole avionics system algorithms. I've been implemented a proprietary algorithm for sensor fusion and calculation of AHRS (yaw, pitch and roll) with static precision (1σ): Yaw $<0.10^\circ$, Pitch $<0.05^\circ$, Roll $<0.05^\circ$.
Full text documentation: <https://github.com/epffpe/MemoriaPFC>
<https://drive.google.com/file/d/0B5KPm73YWJwGbUJU2GV2OHRUWDA/edit?usp=sharing>
- **Personal projects pictures:** <http://www.flickr.com/photos/58635241@N07/sets/>
- **Personal projects video:** <https://www.youtube.com/user/epf2k>