

# Henrique M. P. Cabral

✉ henriquempcabral@gmail.com

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## Education

- Sep 2009—July 2014** **Master in Electrical and Computer Engineering**, *Faculty of Engineering of the University of Porto*, Porto, Portugal, GPA 17.9/20.
- 2014
    - Major in Telecommunications; Microelectronics and Embedded Systems track.
    - *Prémio Incentivo* for four best 1st year engineering students (one in 1500) — 2011
    - Merit Scholarship for twelve best engineering students (one in 500) — 2012
- Sep 2006—** **Secondary school**, *Colégio Luso-Francês*, Porto, Portugal, GPA 18.7/20.
- Jul 2009** Science and technology track.
- Honors diploma for results in Physics and Mathematics Olympiads.

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## Professional experience and research

- Sep 2014—present** **Systems Engineer**, *Veniam Works*, Porto, Portugal.
- Systems and network programming in embedded Linux for city-scale vehicular networks.
- Oct 2013—** **MSc thesis**, *Underwater acoustic modem*, FEUP, Portugal.
- July 2014** Master's thesis under Professor José Carlos Alves.
- FPGA implementation of FSK and PSK modems, including signal conditioning.
  - End-to-end Simulink modelling.
  - Field-testing at sea.
- Nov 2009—** **Student researcher**, *FASt—FEUP Autonomous Sailboat*, FEUP/INESC, Portugal.
- July 2014** Research in autonomous sailboats for scientific and defense applications.
- Redesign and development of onboard data logging system.
  - Architecture and implementation of mission planning language.
  - Participation in the 5th and 6th World Robotic Sailing Championships.
- Apr 2011—** **Student researcher**, *Carebox project*, FEUP, Portugal.
- July 2014** Design, implementation, and evaluation of an automobile black box for insurance purposes.
- Team composed of electrical engineering, economics, and information science students.
  - Implementation of low-level sensor drivers and internal data logging system.
  - Design and assembly of main printed circuit board.
- Aug 2013—** **President**, *AFCEA Porto Student Chapter*, FEUP, Portugal.
- July 2014** Coordination of group activities in cybersecurity and marine robotics. Liaison with AFCEA Portugal, local industry, and other student chapters.
- Sep—June** **Undergraduate teaching assistant**, *FEUP*, Porto, Portugal.
- 2014
    - Teaching laboratory classes on computer networking and electronics.
    - Evaluating and grading assignments and lab reports.
- Summer** **Product development consultant**, *Freelance*, Porto, Portugal.
- 2012
    - Embedded audio platform for IT start-up for South American market.
    - Multidisciplinary team in Portugal and Chile.
    - Two months from specification to working product to secure VC investment.
- Nov 2010—** **Fellow**, *Novos Talentos em Matemática*, Calouste Gulbenkian Foundation, Portugal.
- 2012
    - Mathematics research programme for undergraduate students. Research in geometry, number theory, elliptic curves and functional analysis.

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## Skills

- Languages** Portuguese (native language), English (fluent), Spanish (professional proficiency), French (limited proficiency)
- Coding** C, C++, Java, Lua, bash, Verilog HDL, MATLAB
- OS** Linux (Debian, Fedora, OpenWRT, embedded), Microsoft Windows (XP, 7.0)
- Software** vim, git,  $\text{\LaTeX}$  2 $\epsilon$ , MATLAB, CadSoft EAGLE
- Platforms** PIC 16/32MX, ARM Cortex-M4, Xilinx Spartan 3/3E/6, Xilinx Microblaze

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## Awards and achievements

- Sep 2013** **Best Student Team**, *6th World Robotic Sailing Championship*, Brest, France.  
Together with the École Navale prize for 1st place in endurance race with two boats. Tasks involving speed, endurance, sensing, and high-level behaviours.
- Sep 2012** **1st place**, *5th World Robotic Sailing Championship*, Cardiff, Wales, UK.
- First place in Microtransat class and general ranking.
  - Winners of Hacker Challenge together with German team (building an autonomous sailboat in one week with assorted materials).
- Aug 2009** **Bronze medal**, *40th International Physics Olympiad*, Mérida, Yucatán, Mexico.  
Best theoretical examination score in bronze tier and best result in Portuguese team.

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## Publications

- [1] H. M. P. Cabral et al., “MPL—A Mission Planning Language for Autonomous Surface Vehicles,” in *Robotic Sailing 2013*, Brest, France, 2013, pp. 137-148.
- [2] A. Silva et al., “Measuring underwater noise with high endurance surface and underwater autonomous vehicles,” in *OCEANS 2013*, San Diego, CA, 2013.

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## Extracurricular activities

- Jul—Aug 2013** **Trainee**, *Universidade Itinerante do Mar*, Portugal/Spain.  
Twelve days aboard the training ship *Creoula* with mixed Navy and student crew.
- 140 h and 700 M of navigation.
  - Performed all normal crew tasks.
  - Sailing training and academic instruction on ocean resources.
- June 2011** **Invited student**, *Measure theory course*, FEUP, Portugal.  
Measure theory course for Optimal Control PhD students.
- Feb 2010—** **Participant**, *Programa Delta*, FEUP, Portugal.
- May 2011** Advanced mathematics programme for undergraduate Electrical Engineering students, with lectures on Combinatorics, Logic, Topology and Algebra.
- 2008—Jul 2009** **Participant**, *Quark!—Physics School*, FCTUC, Portugal.  
Physics school for high school students in preparation for Physics Olympiads. Lectures and problem solving on Classical and Quantum Mechanics, Electromagnetism, Thermodynamics, and Optics.

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## Interests

Street photography; cyberpunk literature; design; typography; biking; travelling.