

Federico DOMÍNGUEZ

Lecturer Computer Engineering | PhD in Engineering Sciences

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📍 Guayaquil, Ecuador ⓘ Born November 1977 in Guayaquil, Ecuador



As a lecturer of computer engineering and researcher on smart environments technologies at ESPOL University for the past five years, I've been fortunate to work and teach on what I love the most : technology and its applications on education. I started and currently lead the Smart Environments laboratory where, by means of rapid hardware prototyping tools, we explore Internet of Things applications on learning environments. As faculty, I've taught systems programming, digital signal processing, and computer systems design at the undergraduate level and applied statistics at the graduate level. Overall, I am interested in the integration of computer systems from making sense of the data they produce down to development at the firmware level.

PROFESSIONAL EXPERIENCE

Present October 2014	Researcher on Smart Environments Lecturer Computer Engineering, ESPOL, Guayaquil, Ecuador <ul style="list-style-type: none">> Head of Smart Environments Lab CTI<ul style="list-style-type: none">> Research on IoT applications on learning environments> Use of rapid prototyping tools : 3D printing, PCB manufacturing> Lecturer undergraduate level, Computer Engineering program FIEC<ul style="list-style-type: none">> Systems Programming : Use of low-level C programming> Computer Systems Design : Use of hardware prototyping tools to solve complex problems> Digital Signals Processing : Basic use of FIR and IIR filters> Problem Solving with Computer Science : Use of Design Thinking techniques to find computational solutions to common problems> Discrete Mathematics : Basic understanding of computational mathematics> Capstone course : Supervise/advise graduation projects> Lecturer graduate level, Doctorate Computer Science program DCCA<ul style="list-style-type: none">> Applied Statistics to Computer Science : Descriptive and inferential statistics <div>Education IoT Smart Environments Hardware Prototyping Systems Programming Digital Signals Processing Design Thinking Learning Analytics Environmental Monitoring Inferential Statistics</div>
April 2014 October 2009	PhD Candidate Teaching Assistant WSN Lab, VRIJE UNIVERSITEIT BRUSSEL (VUB), Brussels, Belgium <ul style="list-style-type: none">> Research on techniques to locate environmental noise using sensor arrays in a wireless sensor network : Spatial filtering, Matlab simulations, Hardware prototype design> Research on techniques to collect and distribute environmental noise data in a wireless sensor network : ESB-based cloud solution> Development of a ZigBee domotics product as part of a partnership with industry project : Hardware product design based on TI CC2538, firmware development> Teaching Assistant of the Wireless Sensor Networks Lab, part of the Telecommunications course at undergraduate and graduate level> Final dissertation : "Design and Realization of a Low-Cost, Location-Aware Sensor Network for Noise Pollution Monitoring" <div>Sound Source Localization Spatial Filtering Environmental Noise Monitoring Wireless Sensor Networks ZigBee Firmware development</div>
July 2007 December 2005	Network architect/developer, ESPOL, Guayaquil, Ecuador <ul style="list-style-type: none">> Communal Area Network rural development project : Developed techniques to bring last mile connectivity to computer laboratories in impoverished rural schools in Santa Elena province in Ecuador> Participation in a project of the United Nations Development Programme (UNDP) to bring last mile connectivity to rural schools in the Alto Vera region of Paraguay> Development and implementation of a campus-wide IPTV multicast distribution system at ESPOL <div>Communal Area Networks IPTV Rural last mile</div>

August 2005
February 2001

Systems Administrator, ESPOL, Guayaquil, Ecuador

- > Administration of network and systems of 4 research centers
- > Management team of 2 - 4 engineers
- > Management Cisco networks infrastructure, Unix/Linux, Windows Server administration
- > Support and help desk for +100 users

CCNA CCNP Unix/Linux administration User support

EDUCATION

- 2014 PhD in Engineering Sciences, Highest Honors, Vrije Universiteit Brussel, Brussels, Belgium
2009 Master in Applied Computer Science, High Honors, Vrije Universiteit Brussel, Brussels, Belgium
2005 Computer Engineer, ESPOL University, Guayaquil, Ecuador
1996 High School Diploma, Schutz American School, Alexandria, Egypt

RELEVANT PUBLICATIONS

- 2018 Ochoa, X., **Domínguez, F.**, Guamán, B., Maya, R., Falcones, G., Castells, J. *The RAP System : Automatic Feedback of Oral Presentation Skills Using Multimodal Analysis and Low-Cost Sensors*. In LAK'18 : International Conference on Learning Analytics and Knowledge (pp. 360–364). Sydney, Australia
- 2017 Ullón, H., Zambrano, D., **Domínguez, F.** *Smart Objects for Engineering Labs : Boosting Exploratory Learning in Higher Education*. In 12th Latin American Conference on Learning Objects and Technology, LACLO 2017. La Plata, Argentina : IEEE.
- 2016 Tiete, J., **Domínguez, F.**, da Silva, B., Touhafi, A., Steenhaut, K. *MEMS microphones for wireless applications*. Wireless MEMS Networks and Applications.
- 2015 **Domínguez, F.**, Echeverría, V., Chiluiza, K., Ochoa, X. *Multimodal Selfies : Designing a Multimodal Recording Device for Students in Traditional Classrooms*. In Proceedings of the 2015 ACM on International Conference on Multimodal Interaction (pp. 567–574). Seattle, WA, USA : ACM.
- 2014 Tiete, J., **Domínguez, F.**, da Silva, B., Segers, L., Steenhaut, K., Touhafi, A. *SoundCompass : A Distributed MEMS Microphone Array-Based Sensor for Sound Source Localization*. Sensors (Basel, Switzerland), 14(2), 1918–1949.

Complete list of publications in : [Google Scholar](#)

LANGUAGES

Spanish	●	●	●	●	●
English	●	●	●	●	○
French	●	●	○	○	○
Dutch	●	●	○	○	○
German	●	○	○	○	○

+ STRENGTHS

- > Team work
- > Leadership
- > Problem solver
- > Self-learner

HONORS AND AWARDS

- 2016 Google Internet of Things (IoT) Technology Research Award Pilot : Technology donation and early access to experimental software, awarded by Google LLC
- 2009 Full PhD scholarship (4 years) awarded to the two best students in a master program at the Vrije Universiteit Brussel : Awarded by the International Office of the Vrije Universiteit Brussel
- 2007 Full scholarship (2 years) for international master studies : Awarded by SENESCYT (branch of Ecuadorian Government)

REFERENCES

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