

## Curriculum Vitae

**First Name:** Miguel Ángel

**Family Name:** TORRES-MIRANDA

**PhD Candidate:** Jan. 2012 – Dec. 2014 « *Circuit Design with Flexible Electronics* »

Université Pierre et Marie Curie - Ecole Polytechnique - EIT ICT Labs Doctoral School, Paris, France

In this PhD we are integrating a full system using flexible materials with a "home made" procedure. We're interested to do ubiquitous computing (internet of things) and applications are in the field of wearable technologies. We propose the following:

1. Engineering the fabrication of organic and flexible field effect transistors (OFET)
2. Modeling and parameter extraction for variation aware analog design.
3. Customized CAD tools for circuit and layout design (Alliance© for flexible electronics)
4. Design of analog front ends and digital basic circuits for instrumentation and signal treatment.
5. ADC design for integration with sensors.

### **Technical and Informatics Knowledge:**

- Microscopy: Optical, AFM and SEM microscopy
- Fabrication of transistors and devices (on flexible substrates) by means of:
  - a) Photolithography and self aligned masks procedures.
  - b) Thermal and e-beam evaporation of metals and organic materials with shadow masks
  - c) Spin-coating and ink-jet printing methods (using commercial printers with a resolution of 1-10 pL) with conductive and semiconductive polymers
  - d) Clean room experience and chemical basic procedures.
- Measurement & Characterization techniques: electrical characterization of transistors, Labview©. Modeling and parameter extraction of transistors and devices.
- Modeling systems: using Matlab© and Simulink©
- Simulation and design of electronic circuits: using SPICE softwares (ELDO©, ngspice©) and Modelsim©, Hardware Description Languages (VHDL, VHDL AMS), prototyping on FPGAs chips, Cadence© and Open Source Layout Tools: Alliance©
- Other informatics knowledge: Scientific Linux, C++, Stata©, Microcal© Origin.
- Fluent language skills: Spanish (Mother language), English, French, Italian

### **Education:**

**August 2011**                      Master of Science Degree: Research EEATS  
Speciality *Micro and Nano Electronics* (MNE)  
Université Joseph Fourier – Grenoble INP, France

**August 2009**                      Bachelor Degree of Electrical and Electronic Engineering  
Technical University of Panama  
First Place of the class, Score 2.73 over 3.00

### **Internships:**

**Feb – July 2014**                      PhD Internship at Joanneum Research Lab, Institute for Micro and Nanostructuring, Graz, Austria:  
“*Fabrication and Circuit design using low power flexible transistors by photolithography and self-alignment procedures*”

- Feb – July 2011** MSc MNE Internship and Thesis CEA LETI, Grenoble, France:  
*“Characterization and Design of the next version of an image analyzer ASIC implementing an ADC in each pixel for Medical X-Ray Imaging”*
- Jan - June 2009** Bachelor Thesis Technical University of Panama-University of Panama:  
*“Proposal of a quality control analysis protocole for the efficiency of a high purity germanium radiation detector”.*

### **Scholarships:**

- 2014** Scholarship PhD Scientific Internship, Joanneum Research, Graz, Austria
- 2011-2014** Top 20 over 140 students: of a PhD contract of the Doctoral School EDITE, EIT ICT Labs, Université Pierre et Marie Curie, Paris, France
- 2009-2011** Scholarship of SFERE (France) / IFARHU-SENACYT (Panama) for MSc Studies in France.
- 2004-2008** Excellent student scholarship of Panamanian Government (IFARHU): Electrical & Electronic Engineering Bachelor, Technical University of Panama.

### **Teaching Experience:**

- Jan 2012 – Dec 2013** Teaching Assistantship, Laboratory Courses, Bachelor Level, Université Pierre et Marie Curie, France  
 2nd year: Elementary functions of electronics, Introduction to simulations of electronic circuits, Digital electronics: Combinational and Sequential  
 3rd year: Digital systems

### **Publications & Conferences:**

- Jan. 2014** Miguel Torres-Miranda, et al., “Full Customized Layout Design Environment for Integrated Systems with TFTs”, Poster in the International Thin Film Transistor Conference, ITC2014, Delft, The Netherlands.
- Dec. 2013** Flexible Electronics: From Plastic Devices to Human Machine Interfaces, “A System Integration Approach”, Laboratory Seminar, LPICM, Ecole Polytechnique, Paris, France.

#### **Contact:**

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