

GLAUCO FIORANTE

Westborough, MA

<https://www.prodigieslab.com>
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Summary of Qualifications

- Analog, digital and mixed-signal VLSI ASIC designer
- R&D of custom/off-the-shelf analog and digital electronic circuits and systems
- Embedded systems integration, hardware and firmware on imaging systems
- Competent on SPICE circuit simulation and accomplished IC layout designer to tape-out
- Adept in Tanner layout and floor-planning, Design Rule Checking, Layout versus Schematic
- Awarded patent for inventing Spatio-Temporal pixel biasing on ROIC Infrared Quantum Dots
- Microchip, Freescale Microcontrollers; Xilinx Vivado and Altera tool suites in VHDL SoC FPGAs
- End-to-end PCB design, Lab debug experience, Advanced user on most MS-Office apps

Education

Ph.D. in Electrical Engineering, Microelectronics University of New Mexico, Albuquerque
Dissertation: "Spatio-temporal circuits for imaging sensors".

M.S. in Electrical Engineering, Microelectronics Universidade de São Paulo, Brazil
Thesis: "Autonomous Image Acquisition and Processing System".

B. S. in Electrical Engineering, Universidade Santa Cecília, Santos, Brazil

Main Award

2009-2013 - **FULBRIGHT** Scholarship for PhD program at UNM

Issued Patent

G.R.C Fiorante, P. Zarkesh-Ha, S. Krishna, "Spatio-temporal tunable pixels ROIC for multi-spectral imagers", US Patent # 9,521,346 B1, Issued December 13, 2016.

Professional Experience

Electrical Engineer Consultant, Fault Tolerant Technology, Mulberry, FL 01/2019 – present

Innovative computer architecture prototype enhancement, the Multi-Domain Architecture (MDA). C and VHDL programming of Xilinx FPGAs. SPI and Wi-Fi based communication. PCB layout.

Electronics Engineer Consultant, SymmetrySensors, San Carlos, CA 11/2018 – 01/2019

R&D of LASER-based novel Air Quality Sensor and System for IoT applications. Low-noise amplification. Power supply and signal conditioning of LASER particle detector, PCB design.

Post-Doctoral Fellow ECE, University of New Mexico, Albuquerque, NM 10/2018 – 11/2018

Original computer architecture prototype R&D for proof of concept of the Multi-Domain Architecture (MDA), for the Fault Tolerant Technology company, under the 2018 New Mexico Small Business Assistance (NMSBA) program. Schematic capture, ModelSim simulation, VHDL programming of Xilinx Artix FPGAs. SPI digital communication protocol. PCB layout and BOM.

Researcher, Federal Institute of Sao Paulo, Sao Paulo, SP, Brazil **08/2013 – 11/2017**
Principal Investigator of Industrial and Environmental Studies Research Group
Advisor of students in the Scientific Initiation Fellowship Institutional Program covering
FPGA-based characterization test beds for microelectronics devices projects.
Professor **03/1993–11/2017**
B.S. in Electrical Engineering
A.S. in Digital Systems Technology
Electronics, Telecommunications, Industrial Automation Technician Courses and Online courses

Research Assistant, Center for High Technology Materials, Albuquerque, NM **08/2009 – 07/2013**
State-of-the-art ASIC Readout Integrated Circuit (ROIC) schematic to tape-out for Spatio-Temporal pixel biasing on Infrared Quantum Dots in a WELL Focal Plane Array;
Development of FPGA-based embedded system for generation of BIAS and synchronization signals on multi-spectral image acquisition and processing system;
CMOS photodiodes design and characterization; VLSI design of Pads with ESD protection;
ASIC ROIC design, simulation, floor-planning, tape-out, test and characterization.

Product Development Engineer, Emicol Eletro Eletronica, ITU, SP, Brazil **07/2008 – 03/2009**
High-volume production, design for manufacturing and test of electronic circuits with Atmel, Microchip, and Freescale microcontrollers for home appliances (washer, refrigerator, dryer) and for automotive unique Diesel-based Fuel Flow Meters.

Electronics Engineer, Brisa.org, Sao Paulo, SP, Brazil **02/2003 – 07/2003**
Research and development of a System for Automated Machine Vision Inspection for control of industrial quality through the capture and processing of images of Printed Circuit Boards, sponsored by LG.

Engineering Manager, Unica Services, Santos, SP, Brazil **01/1998 – 07/1999**
Management and technical leadership of 23 field technicians and 3 staff employees as a contractor for a Cable TV company, servicing a base of 50,000 customers.

Outreach activities

IFCIENCIA 2015-2016-2017, IFSP, Salto, BR;
Engineering Week 2005-2006-2007, FITO, Osasco, BR.

Voluntary Work

Prodigieslab.com coordinator, digital electronics laboratory and e-learning 2014 to date;
President, Teachers and Parents Association of IFSP, Cubatao, Brazil, 2000 – 2001.

Publications

Journal publications

1. Javad Ghasemi, Manish Bhattarai, Glauco R.C. Fiorante, Payman Zarkesh-Ha, Sanjay Krishna, and Majeed M. Hayat, "CMOS approach to compressed-domain image acquisition", **Optics Express** **4076**, Vol. 25, No. 4, February 20, 2017
2. G.R.C. Fiorante, J. Ghasemi, P. Zarkesh-Ha, S. Krishna, "Spatio-Temporal Bias-Tunable Readout Circuit for On-Chip Intelligent Image Processing", **IEEE Transactions on Circuits and Systems I: Regular Papers**, Vol. 63, Issue 11, pp. 1825-1832, November 2016
3. Barve et al. "Barrier Selection Rules for Quantum Dots-in-a-Well Infrared Photodetector", **IEEE Journal of Quantum Electronics**, Vol. 48, Issue: 10, pp. 1243-1251, October 2012

Conference Publications

4. M. Bhattarai, J. Ghasemi, G.R.C. Fiorante, P. Zarkesh-Ha, S. Krishna, M. Hayat, "Intelligent bias-selection method for computational imaging on a CMOS imager", Photonics Conference (IPC), 2016 IEEE, October 2016
5. G.R.C. Fiorante, P. Zarkesh-Ha, J. Ghasemi, S. Krishna, "Spatio-temporal tunable pixels for multi-spectral infrared imagers", 2013 IEEE 56th International Midwest on Circuits and Systems (MWSCAS), pp. 317-320, August 2013
6. J. Ghasemi, P. Zarkesh-Ha, G.R.C. Fiorante, S. Krishna, "A new CMOS readout circuit approach for multispectral imaging", IEEE Photonics Conference (IPC), September 2013
7. J.F. Xu, G.R.C. Fiorante, P. Zarkesh-Ha, S. Krishna, "A readout integrated circuit (ROIC) with hybrid source/sensor array", IEEE Photonics Conference (PHO), pp. 97-98, October 2011
8. F.J. Ramirez-Fernandez and G.R.C. Fiorante, "Sistema Autonomo de Aquisicao e Processamento de Imagens" ("Autonomous System for Image Acquisition and Processing") In: III Congresso IberoAmericano de Sensores Y Biosensores (IBERSENSOR 2002), Lima, Peru, 2002.
9. G.R.C. Fiorante et al., "Planta-piloto de refinacao de petroleo para treinamento" ("Petroleum refining pilot-plant for training"), VIII Seminario de Instrumentacao, Instituto Brasileiro do Petroleo, Rio de Janeiro, Brazil, 1989.
10. G.R.C. Fiorante and E.V. Hoene, "Sistema de deteccao de vazamentos em Dutos de Transferencia" ("Leak detection system in transfer pipelines") In: VII Seminario de Instrumentacao, Instituto Brasileiro do Petroleo, Rio de Janeiro, Brazil, 1987.

Reviewer

11. Journal of Electronic Imaging, SPIE, 2017
12. Infrared Physics & Technology, 2014