

VITAE – MARTA GAIA ZANCHI

Visa Status: USA Permanent Resident – Italian Citizen

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PROFILE-----

I am a research assistant with the Magnetic Resonance Systems Research Laboratory led by my principal advisor Prof. John M. Pauly. My secondary advisor is Prof. Thomas H. Lee, leader of the Stanford Microwave Integrated Systems Laboratory. Since the year 2006, I develop control systems for radio-frequency power amplifiers for application in magnetic resonance imaging transmitter arrays. I am also a long-time student of technical and professional writing at the Stanford School of Engineering, and was trained in the basics of new venture business development by the Institute of Entrepreneurship at the Stanford Graduate School of Business. More recently, I have started work as a Product Marketing Engineer with LitePoint, a privately held wireless technology company based in Silicon Valley specializing in some of the worlds' most advanced, standard-specific, test instruments and solutions.

EDUCATION-----

2006-present: **Ph.D., Electrical Engineering**, Stanford University, CA. Expected: 05/2010 GPA: 3.98/4
Thesis title: Cartesian feedback control for MRI transmitter array systems

2003-2005: **M.S., Electrical Engineering**, Cum Laude, Politecnico di Milano, Italy GPA: 30/30
Thesis topic: Imaging system based on silicon drift detectors for applications in nuclear medicine

2000-2003: **B.S., Biomedical Engineering**, Cum Laude, Politecnico di Milano, Italy GPA: 30/30
Thesis topic: Near infrared spectroscopy for in vivo measurement of myoglobin oxygenation

INTENSIVE TRAINING -----

- **Trained in finance, marketing, accounting, public speaking, leadership, and networking** by the Stanford Graduate School of Business faculty at the Summer Institute for Entrepreneurship 2008
- **Trained in Technical Writing** at the Stanford School of Engineering since spring 2007 (ongoing)

RESEARCH TOPICS-----

- Cartesian feedback control systems for MRI radio-frequency power amplifiers
- Radio-frequency methods and sub-systems for enhanced MRI safety
- Low-noise front-end architectures for photon-emission computerized tomography
- Solid-state radiation detectors and photodetectors for medical applications
- Time-of-flight photon detection techniques and electronics for optical spectroscopy

EMPLOYMENT-----

09/2007-pres.: **Product Marketing Engineer**, LitePoint, Sunnyvale, California.
Responsible for bridging across many different functional aspects of the company
Help develop new products and product positioning. Maintain and improve existing products

09/2007-pres.: **Research Assistant**, Stanford University, Stanford, California.
Designed control systems for radio-frequency power amplifiers safety in MRI

05-07/2009: **Medical Device Fellow – Electrical Engineer**, U.S. Food and Drug Administration, Maryland.
Participated in the regulatory review process of MRI radio-frequency sub-systems and systems

06-09/2007: **System Design Intern**, Volterra Semiconductors Corporation, Fremont, California.
Developed behavioral time-domain model of integrated dc-dc power converters

2005-2006: **Research Assistant**, Politecnico di Milano, Italy.
Designed electronics readout, cooling system, and mechanical assembly for an Anger camera

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SOFTWARE SKILLS -----

- **Analog circuit design:** Cadence Orcad 10PCB, Electronics Workbench Multisim/Ultiboard 9, LTSpice/Switchercad 3, Simplis/Simatrix 5.3, AltiumDXP 2004
- **Web/Document design:** Microsoft Office (Word, Powerpoint, Excel, Visio), Adobe Photoshop CS4, TexnicCenter, OriginPro 8, Macromedia Dreamweaver 8, Sketchup 5 Pro
- **System level design:** Matlab 7, Autocad

SELECTED COURSES -----

Stanford University, CA

- RF Integrated Circuit Design
- Design of Discrete RF Circuits
- High Frequency Laboratory
- The Entrepreneurial Engineer
- Technical and Professional Writing
- Writing: Special Projects (2-year training)

Politecnico di Milano, Italy

- Microelectronics
- Power Electronics
- Sensors, Signals and Noise
- Nuclear Measurements
- Biomedical Electronics I-II
- Bioelectromagnetics

HONORS & AWARDS -----

- 2009: Medical Device Fellowship, U.S. Food & Drug Administration, MD, and Stanford Biodesign Program, CA
- 2008 and 2009: Travel Awards, International Society for Magnetic Resonance in Medicine
- 2008: Garnier Fellowship, Summer Institute for Entrepreneurship, Stanford Graduate School of Business, CA
- 2006: Forbes Fellowship, Electrical Engineering Department, Stanford University, CA
- 2005 and 2006: Travel Awards, IEEE Nuclear Science Symposium
- 2005: Best Graduates Gold Medal, Politecnico di Milano, Italy
- 2005: Accenture Award, Politecnico di Milano, Italy

WRITING, CONSULTING AND LEADERSHIP EXPERIENCE -----

- **Wrote a grant proposal awarded \$80,000** for studies associated with a small animal PET system insert for a MR system for simultaneous small animal PET/MR imaging
- **Participated in the writing of a EU grant proposal awarded 300,000€** (first of six rounds of funding totaling 1,715,000€) and developed partnerships through contact with companies, research institutes, universities, and hospitals, to design an Anger camera based on silicon-drift detectors for diagnosis and staging of cancers
- **Supported the activity of the medical personnel** twice by monitoring clinical imaging equipment at the Nuclear Medicine Division and at the Cardiac Surgery Division of the “Riuniti” Hospitals of Bergamo, Italy
- **Organized the activities and coordinated the resources** of Politecnico di Milano, Italy, and of McGill University, Montreal, Canada, to develop optical spectroscopy systems based on Single Photon Avalanche Diodes

OTHER INTERESTS -----

- Graduate in Professional Photography of the John Kaverdash Academy, Milan, Italy, 2004-2005
- Volunteer with the Peninsula Humane Society: web content writer and photographer

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PATENTS-----

- M.G. Zanchi, G.C. Scott, “Frequency Offset Cartesian Feedback System,” Application No. 12/464,010, filed with the United States Patent and Trademark Office on May 11, 2009.

JOURNAL PUBLICATIONS AND CONFERENCE PROCEEDINGS-----

- M.G. Zanchi, P. Stang, J.M. Pauly, G.C. Scott, “Tuning the Output Impedance of RF Power Amplifiers with Frequency-Offset Cartesian Feedback,” submitted to ISMRM 18th Scientific Meeting.
- M.G. Zanchi, P. Stang, J.M. Pauly, G.C. Scott, “On Stability and Performance of Frequency-Offset Cartesian Feedback for RF Power Amplifiers of MRI Transmitter Arrays,” submitted to ISMRM 18th Scientific Meeting.
- M.G. Zanchi, J.M. Pauly, G.C. Scott, “Frequency-Offset Cartesian Feedback Based on Polyphase Difference Amplifiers,” submitted to *IEEE Transactions on Microwave Theory and Techniques*.
- M.G. Zanchi, J.M. Pauly, G.C. Scott, “An Optically-Coupled System for Monitoring of MRI-Induced RF Currents into Long Conductors,” accepted for publication in *IEEE Transactions on Medical Imaging*, 2009.
- M.G. Zanchi, J.M. Pauly, G.C. Scott, “Frequency Offset Cartesian Feedback Control System for MRI Power Amplifier,” Proceedings of ISMRM 17th Scientific Meeting, Hawaii, 2009.
- M.G. Zanchi, J.M. Pauly, G.C. Scott, “Feasibility of Active Cable Trap to Attenuate MRI-Induced RF Currents,” Proceedings of ISMRM 17th Scientific Meeting, Hawaii, 2009.
- M.G. Zanchi, R. Venook, J.M. Pauly, G.C. Scott, “An Optically-Coupled System for Quantitative Monitoring of MRI-Induced RF Currents into Long Conductors,” Proceedings of ISMRM 16th Scientific Meeting, Canada, 2008.
- C. Fiorini, A. Gola, M. Porro, M.G. Zanchi, “The electronics readout and the DAQ system of the DRAGO Anger Camera,” *Nuclear Instruments & Methods in Physics Research Section A*, vol. 571, pp. 339-342, 2007.
- C. Fiorini, A. Gola, M.G. Zanchi, A. Longoni, H. Soltau, “Silicon Drift Photodetectors for scintillation readout in medical imaging,” *Nuclear Instruments & Methods in Physics Research Section A*, vol. 571, pp. 126-129, 2007.
- A. Gola, C. Fiorini, M. Porro, M.G. Zanchi, “Readout Electronics and DAQ System of DRAGO Anger Camera,” *Nuclear Science Symposium Conference Record 2006*, vol. 3, pp. 1334-1337.
- C. Fiorini, A. Gola, M.G. Zanchi, A. Longoni, M. Porro, P. Lechner, H. Soltau, L. Strüder, “DRAGO: A Gamma-Ray Imager for Medical Imaging,” *Nuclear Science Symposium Conference Record 2006*, vol. 6, pp. 3581-3584.
- C. Fiorini, M.G. Zanchi, A. Gola, A. Longoni, “Comparison of Performance of Scintillation Detectors based on different Photodetectors,” presented at 1st Symposium on Advanced Molecular Imaging Techniques in Detection, Diagnosis, Therapy and Follow-Up of Prostate Cancer, Roma, Italy, 2005.
- C. Fiorini, A. Gola, M.G. Zanchi, P. Lechner, H. Soltau, “Gamma-ray Spectroscopy with LaBr:Ce Scintillator Readout by a Silicon Drift Detector,” *IEEE Transaction on Nuclear Science*, vol. 53 (4-2), pp. 2392-2397, 2006.
- C. Fiorini, A. Gola, A. Longoni, M.G. Zanchi, A. Restelli, F. Perotti, P. Lechner, H. Soltau, L. Strüder, “A large area monolithic array of silicon drift detectors for medical imaging,” *Nuclear Instruments & Methods in Physics Research Section A*, vol. 568, pp. 96-100, 2006.