GIUSEPPE COSTANTINO GIACONIA - CURRICULUM VITAE

born in [redacted]) on the [redacted]
married with two children.
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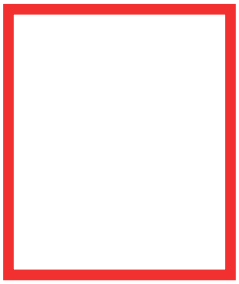

RESUME:

Lauream *degree*: Electronic Engineering, with curriculum in Optoelectronics
date and place: 14 July 1989, University of Palermo
final evaluation: full marks with honors
thesis and tutors: Development and characterization of a laser direct writing microlithographic process
Prof. S. Riva Sanseverino and Prof. C. Arnone

Gov. qualification: Certified Professional Engineer, University of Palermo, 7 June 1990

PhD *degree in:* Electronics, Informatics and Telecommunications Engineering
date and place: 25 July 1994, Rome
PhD thesis: Laser direct writing microlithography: evolution and emerging applications
(University of Palermo)

Present status: Associate Professor of Electronics within the Department of Engineering - Università degli studi di Palermo.

Relevant held positions: Responsible of B.Eng. And M.Eng. on Electronics Engineering (Academic Years 2013-2016)
Responsible of B.Eng. on Cybernetics Engineering (Academic Years 2017-)

Teaching activity: Several Analog & Digital Electronics Systems and Lab courses (from 2003 up to date)

MAIN ACTIVITIES:

Selected for 5 five main fellowships, two of which granted by the European Community:

- **PhD fellowship** carried out at the University of Palermo **(36 months)**;
  Subject: *Laser direct writing microlithography: evolution and emerging applications.*
- **CNR (italian National Research Council) fellowship** carried out at the University of Palermo **(12 months)**;
  Subject: *Techniques of laser photolithography.*
- **CNR (italian National Research Council) fellowship** carried out at the University of Palermo and the Integrated Optics Research Center of Alenia-Marconi of Rome **(30 months)**;
  Subject: *Technologies for integrated optics devices and their use in optical fiber systems.*
- **EC fellowship (Marie Curie Fellowship cat. 30-24 months)** carried out at the Nanoelectronic Group of the Electronics Engineering Department, Glasgow University
  Subject: *Design and fabrication of high efficiency diffractive optical devices made of artificial dielectrics.*
- **EC fellowship (Marie Curie Fellowship cat. R-12 months)** carried out at the University of Palermo;
  Subject: *Diffractive optical elements for sensing applications.*

Author of: over 90 Scientific Publications and more than 20 confidential Scientific & Industrial Reports;
(see list of Scientific Publications at - https://tinyurl.com/y99nz3bq)

Tutor of: 8 PhD studentships, 15 Research fellowships
over 100 final year project carried out within the DEIM at the University of Palermo and the Nanoelectronic Group of the Electronics Engineering Department, Glasgow University

RELEVANT SCIENTIFIC TECHNIQUES AND SKILLS ACQUIRED

- Micro- and nano-lithographic processes and related technologies: coating of 2-D and 3-D samples with resist or metalorganic compounds by spinning, spraying and dipping deposition techniques, optical and e-beam exposure, wet etching and lift-off processes, thin film fabrication by physical vapour deposition, sputtering deposition, deep knowledge of design, fabrication and general operations in clean room environments.
  This experience arose from two main periods: the 3 years PhD mainly devoted to optical microlithography and the related technologies; and the two years European contract spent at the Glasgow University where the e-beam nanolithographic features has been pushed to their limits.
- Mask fabrication and generic substrate patterning by laser direct writing, for several applications: diffractive and integrated optics, microwave passive planar devices, silicon micromachining, non-conventional 3-D structures.

All these technologies has been deeply investigated during the PhD and beyond that period with special emphasis to the scalar diffraction theory, its limits both from the theoretical and practical implementation point of view.

- During the EC grant in Glasgow, besides the nanolithographic skills, a deep study of the Diffraction Theory has been carried out with the main goal to investigate the possibility to implement artificial dielectrics, i.e. devices whose dielectric constant doesn't exist in nature. As a result, a computer program capable to design two level geometries emulating predefined dielectric constants has been carried out. Its optimization phase allowed to take into consideration the technological constraints coming out from the fabrications tolerances. This has been used to effectively design and implement real nanodevices that perfomed the world best efficiency in its category (1998).
- During the 30 month period of the CNR grant, a full collaboration with Alenia-Marconi (hold by Finmeccanica) has been exploited. The main goal was the study and realization of a complete method able to use the anysotropic etching properties of crystalline silicon in order to realize a robust coupling between single mode optical fibers and Lithium Niobate optical integrated devices (built by Alenia-Marconi). The results of these work have been confidentially published within a number of Scientific Technical Report hold by CNR and Alenia-Marconi.
- Deep knowledge of microprocessor based hardware architectures, design and implementation of programmable digital systems such as microcontroller and FPGA (Field Programmable Gate Array) through VHDL. Real-time computer control of laboratory equipments. These experiences essentially was matured from the activity carried out within the Digital Electronics Systems Laboratory (whose project leader is Costantino Giaconia since 2002) which is involved in several projects related to different applications.

RELEVANT COORDINATION AND MANAGEMENT SKILLS ACQUIRED

- Planning and managing expertise on R&D projects acquired both at National and European level. In particular coordination and managing, among others, of the electronic part of the following Research projects has been carried out:
  - ASTONISH project (http://www.astonish-project.eu/): Advancing Smart Optical Imaging and Sensing for Health (European Project financed by ECSEL within the H2020 framework – period: 2016-2019)
  - BEYWATCH project: Bulding EnergY WATCHer (awarded as the best ICT for energy efficiency project by EU Commission);
  - HIGH PROFILE project: HIGH-throughput PROduction of FunctIonaL 3D imagEs of the brain (European Project co-financed by ARTEMIS Joint Undertaking initiative)
  - RETI SMART (Linea di intervento 4.1.1.1 of POR FESR Sicilia 2007-2013)
  - PRIMO Project: Piattaforme Riconfigurabili per Interoperabilità in MObilità (FIRB National Project)
  - QUALI.BIO Project: Controllo di QUALItà dei prodotti Alimentari mediante BIOsensori con l'uso di microtecnologie (FIRB National Project).

RELEVANT INDUSTRIAL EXPERIENCES ACQUIRED

- Founder of three start-up companies directly related to the electronic skills acquired from the applied research and aiming to create job opportunities for young, vibrant and talented electronic engineers coming out from the university degrees:
  - MICROTECH s.r.l. High-tech company, born in 1992, mainly devoted to the design and realization of Direct Laser Writing systems, suitable for pattern generators at micron and sub-micron line-width scale and laser diagnostic systems.
  - RCMS s.r.l., ReConfigurable MicroSystems whose main mission is to design and implement high performances embedded systems, based on microprocessor, FPGA or hybrid solutions, for very fast and/or very high precision data acquisition and signal processing. Generation of patented solutions based on new ideas are also among the pursued goals.
  - PRYSMIAN ELECTRONICS s.r.l. devoted to generate innovative electronics devices and systems toward the main goal to enrich electric power distribution networks with novel solutions and a full implementation of real smart energy networks.
  - Consultant of industrial partners, both for teaching and research related missions:
    STMicroelectronics (Palermo's Design Center and Catania site)
    Alelco (Palermo premises)
    CRES Monreale (PA)
    Alenia-Marconi (Rome premises)

Palermo June, 01st 2019

signature

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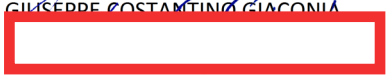

Il sottoscritto dichiara di essere a conoscenza dell'art. 46 del D.P.R. 445/2000 e consapevole della responsabilità penale prevista dall'art. 76 del medesimo D.P.R., per le ipotesi di falsità in atti e dichiarazioni mendaci ivi indicate;
Il sottoscritto esprime inoltre il proprio consenso affinché i dati personali forniti possano essere trattati, nel rispetto del Decreto Legislativo 196/2003.

Palermo June, 01st 2019

In fede

GIUSEPPE COSTANTINO GIACONIA