

CURRICULUM VITAE

Personal information

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Nationality Italian

Date of birth 28th February 1984

Work experience

Dates	December 2016 – Present
Occupation or position held	Assistant Professor
Main activities and responsibilities	Study of innovative graphene-based materials and technological processes for the fabrication of energy harvesting and storage devices.
Name and address of employer	Applied Science and Technology Department. (DISAT) - Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy;
Type of business or sector	Research and development
Dates	July 2013 – November 2016
Occupation or position held	Fellow Researcher
Main activities and responsibilities	Study of innovative materials and technological processes for the fabrication of M/NEMS optical devices for biomedical applications.
Name and address of employer	Applied Science and Technology Department. (DISAT) - Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy;
Type of business or sector	Research and development
Dates	February 2013 – June 2013
Occupation or position held	Fellow Researcher
Main activities and responsibilities	Study and optimization of the fabrication processes of metal-oxide nanostructures and their integration as electrodes into dye-sensitized solar cells (DSCs), Li-Ions batteries (LiBs) and piezo-harvester.
Name and address of employer	Center for Space Human Robotics IIT@PoliTo, Istituto Italiano di Tecnologia, 21 Corso Trento, 10129, Torino, Italy
Type of business or sector	Research and development
Dates	January 2010 – December 2012
Occupation or position held	Ph.D. student in Electronic Devices
Main activities and responsibilities	Innovative solutions for flexible photovoltaic cells working in different lighting conditions, new generation dye sensitized cells based on new materials and nanotechnologies as possible application for space robotics. Semiconductor oxides synthesis by anodic oxidation and device integration.

Name and address of employer	Center for Space Human Robotics, IIT@PoliTo, 21 Corso Trento, 10129, Torino, Italy
Type of business or sector	Research and development
Dates	May 2009 – December 2009
Occupation or position held	Fellow Research
Main activities and responsibilities	Technological processes devoted to micro and nanostructures with MEMS applications such as microfluidic devices (microvalves, micropumps, bubble trap) and micro-relay (cantilever-based).
Name and address of employer	Materials Science and Chemical Eng. Dept. (DISMIC) of Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy; and for Chilab – Microsystems and Material Laboratory, Palazzo Einaudi, 6 Via Lungo Piazza d'Armi, 10034 Chivasso (TO), Italy
Type of business or sector	Research and development
Dates	September 2008 – April 2009
Occupation or position held	Apprenticeship (Physical engineering – 2nd degree)
Main activities and responsibilities	Study and characterization of polymers adhesion in microfluidic devices
Name and address of employer	Materials Science and Chemical Eng. Dept. (DISMIC) of Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy; and for Chilab – Microsystems and Material Laboratory, Palazzo Einaudi, 6 Via Lungo Piazza d'Armi, 10034 Chivasso (TO), Italy
Type of business or sector	Research and development
Dates	April 2008
Occupation or position held	Occasional fellowship
Main activities and responsibilities	Presentation of micro nano technologies involved to realize art works during the art exhibition “Nanoarte” at Politecnico di Torino
Name and address of employer	Physics department (DIFIS) of Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy
Type of business or sector	Technologies and arts
Dates	May 2006 – July 2006
Occupation or position held	Apprenticeship (Physical engineering - 1st degree)
Main activities and responsibilities	Technologies to monitor atmospheric fine particulate and implementation of algorithms for image analysis
Name and address of employer	Istituto Nazionale di Ricerca Metrologica (INRiM), 73 Strada delle Cacce, 10135, Torino, Italia
Type of business or sector	Research and development

Education and training

Dates	January 2010 – December 2012
Title of qualification awarded	PhD in Electronic Devices
Title of the thesis	“Metal-Oxide Nanostructures for Energy Applications”
Name and type of organisation providing education and training	Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy
Dates	September 2007 – April 2009
Title of qualification awarded	Physical engineering – 2nd degree 110L/110
Title of the thesis	“Problematiche di adesione annesse alla fabbricazione di dispositivi microfluidici in PDMS”
Name and type of organisation providing education and training	Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy

Dates	September 2003 – September 2007
Title of qualification awarded	Physical engineering – 1nd degree 103/110
Title of the thesis	“Realizzazione di uno scatterometro per l’analisi di particolato atmosferico – analisi di immagini”
Name and type of organisation providing education and training	Politecnico di Torino, 24 Corso Duca degli Abruzzi, 10129, Torino, Italy

Personal skills and competences

Mother tongue(s)	Italian
Other language(s)	English
assessment	IELTS 6.5
	French
assessment	Basic level

Technical skills and competences

- Synthesis techniques of metal-oxide nanostructures: anodic oxidation, thermal oxidation and hydrothermal reaction acquired at IIT Laboratory
- Technological processes for the fabrication of Dye sensitized solar cells acquired at IIT Laboratory
- Micro/nano fabrication processes : bulk/surface Silicon micromachining (optical lithography, direct laser writing technique, wet etching), thin film deposition and polymer technology (hot embossing, milling machine, casting, spin-coating) acquired at Chilab Laboratory
- Materials Characterization Techniques : Fourier Transform Infrared spectroscopy (FTIR), Contact Angle (CA), profiler machine, optic microscope, acquired at Chilab Laboratory and at Materials Science and Chemical Eng. Dept. of Politecnico di Torino
- Device characterization: I-V measurements, electrochemical impedance spectroscopy, open circuit voltage decay measurement acquired at IIT Laboratory.

Computer skills and competences

Softwares:

- Comsol Multiphysics - Finite Element Method (F.E.M.) simulation software, implementing structural mechanic module for polymeric microfluidic devices (acquired at Chilab Laboratory)
- Ise_Tcad - Element Method (F.E.M.) simulation tool for study semiconductor processes and electronic devices (acquired during university courses)
- Matlab - used to implement algorithms for image analysis (acquired during university courses)
- AutoCad and Rhinoceros 3D packages (acquired at Chilab Laboratory)
- Origin - graphing and data analysis (acquired during university courses)
- Gimp - image analysis (acquired at INRiM)
- Labview - graphical programming for measurement and automation (acquired during university courses)

Programming languages known: C and C++

Good knowledge of MS Office (Word, Excel, PowerPoint)

Teaching activity

- 2013/2014, 2014/2015, 2015/2016 Collaborator for the course "Introduzione alle Nanotecnologie", Politecnico di Torino, Torino, Italia (8 hours lab each year)
- 2014/2015 Teacher in the "Master in Ingegneria dei Sistemi di Propulsione", Module: "sensoristica MEMS", Politecnico di Torino, Torino, Italia (8 hours frontal lessons)
- 2015/2016, 2016/2017 Teacher in the "Master in Additive Manufacturing", Module: "Advanced sensors for additive manufacturing systems", Politecnico di Torino, Torino, Italia (20 hours frontal lessons each year)
- 2015/2016, 2016/2017 Teacher for the course "Tecnologie per le nanoscienze", Politecnico di Torino, Torino, Italia (9 hours frontal lessons, 20 hours lab each year)
- 2016/2017 Collaborator for the course "Fisica I", Politecnico di Torino, Torino, Italia (18 hours lab)

Commission of trust

- Assistant editor "Advanced Smart Materials", De Gruyter Open, Sp. z o.o. Bogumiła Zuga 32A St. 01-811, Warsaw, Poland
- Member of the scientific board AIV2017-XXIII Conference of Italian Association of Science and Technology, 5-7 April 2017, Firenze, Italy
- Editor of the Journal of Advances in Materials Science and Engineering (Hindawi) <https://www.hindawi.com/journals/amse/editors/>
- Guest Editor for Journal the journal Nanomaterials (MDPI) Special Issue "ZnO and TiO₂ Based Nanostructures" http://www.mdpi.com/journal/nanomaterials/special_issues/ZnO_TiO2nano
- Guest Editor for Journal of Vacuum Science & Technology B - Special Issue "Selected Papers from the 2017 Italian Association of Science and Technology XXIII Conference"
- Reviewer for international peer-review journal such as Advanced Materials, Advanced Energy Materials Nanotechnology, ACS Energy Letters, Applied Energy, Journal of Power Sources, Microfluidics and Nanofluidics, Thin solid films, Microelectronic Engineering, ACS Applied Materials and Interfaces, Small, Scientific Reports, RSC Advances, Journal of Materials Chemistry C,...

International Collaborations

- King Abdullah University of Science and Technology - KAUST (Saudi Arabia), Contact: Dr. Andrea Falqui. Topic: in situ TEM characterization of nanostructures for energy applications.
- IBM Almaden Research Center (USA), Contact: Dr. Ho-Cheol Kim. Topic: Energy storage materials and devices.
- University of Ljubjana (Slovenia), Contact: Prof. Barbara Malic. Topic: Sol-gel piezoelectric thin film deposition for MEMS applications.
- Curie research center, Paris (France), Contact: Dr. Ivan Ferrante. Topic: Graphene-based substrates for neuronal cell growth.
- University Politecnica of Bucharest (Romania), Contact: Prof. Anca Ionescu. Topic: modeling and characterization of dye-sensitized solar cells.
- National Centre for Physics, Islamabad (Pakistan), Contact: Dr. Nadia Shahzad. Topic: fabrication and characterization of innovative dye-sensitized solar cell materials.
- University of Southampton (UK), Contact: Prof. Guy Denuault. Topic: multiphysics numerical simulations of capacitive mixing devices.
- Bionics Institute - Melbourne (Australia), Contact: Dr. Joel Villalobos. Topic: fabrication and characterization of innovative graphene-based electrodes for Deep Brain Stimulation.

Torino 18/09/17

