



# Giorgio Quaranta

Ph.D. Student in Optics & Photonics  
Micro and Nano Technology Engineer

I am a Ph.D. student in applied nanophotonics, developing optical structures based on thin-film for industrial up-scalable applications, such as optical security, biosensors, optical combiners for near-eye displays. I am also an engineer on innovation, qualified in a broad range of micro and nanotechnology fields.





Five words about me: *motivated, passionate, organized, creative and hard-working.*

## Job Applied for: Optical / R&D Engineer

### Personal and contact details

Current Location: Basel (Switzerland)  
Mobile phone: +41 77 955 3413  
Email: giorgio.quaranta@protonmail.ch  
Nationality: Italian  
Date of Birth: 18/06/1991  
Sex: Male  
Driving Licence: B


### Find Out More About Me:

 [www.giorgioquaranta.it](http://www.giorgioquaranta.it)  
 [linkedin.com/in/giorgioquaranta](https://www.linkedin.com/in/giorgioquaranta)  
 [scholar.google.com/citations?user=tZLVjE8AAAAJ](https://scholar.google.com/citations?user=tZLVjE8AAAAJ)  
 [orcid.org/0000-0003-3471-3802](https://orcid.org/0000-0003-3471-3802)

### Work Experience

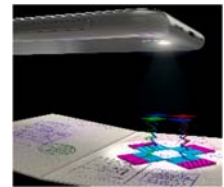
CSEM S.A.  
PhD Student

#### PhD Student in Nanophotonics for industrial applications

 NOV 2015 – PRESENT

Study of thin film optical structures based on resonant waveguide gratings for up-scalable applications, such as optical security, biosensors, optical combiners for near-eye display. *Completion expected on December, 2018.*

- Large area ebeam lithography, optical design of metasurfaces, optical simulations, analytical modeling, supervision of students, involvement in industrial projects.
- Peer-reviewed papers, patents, white papers.



### Education

Master's Degree  
Engineer Diploma

#### International Master in Micro and Nano Technologies for ICT

 SEP 2013 – SEP 2015

Managing and designing highly scientific and innovative products and processes in all areas of industrial and applied research based on micro/nano devices and related technologies.

#### Four semesters, held in four different European Centres:



*PoliTo (Politecnico di Torino - Italy).*

- Physics of solid-state
- Nanomaterials
- Techniques for processing and characterising nanomaterials

*INPG (Institut national polytechnique de Grenoble - France).*

- Nanostructures
- Nano-electronics
- Electronic microsystems

*EPFL (Ecole polytechnique Fédérale de Lausanne - Switzerland).*

- Analog microcircuits
- Digital microcircuits
- Micro-nano systems

*CSEM (Swiss Center for Electronics and Microtechnology in Basel – Switzerland).*

- Master Thesis Project “*Optimization of resonant waveguide for optical security*”

Bachelor's Degree

## Physical Engineering

SEP 2010 – SEP 2013

- Quantum physics
- Optics and photonics
- Solid-state physics
- Nuclear physics
- Physics and technology of nanostructures
- Thermal PVD (Physical Vapour Deposition)
- Raman Spectroscopy
- Physics of complex systems
- Electrotechnical, electronic, electromagnetic fields
- Measures
- Mathematics and chemistry as applied to engineering

## Projects and Internships

CSEM S.A.  
Master Thesis Project

### Optimization of resonant waveguide for optical security

MAR 2015 – AUG 2015

Study and optimization of arrays of resonant waveguide-gratings designed for optical elements for optical security, working in fabrication (UV-casting), characterization (AFM and Optical Microscopy) and engineering development, in parallel with analytical and numerical solving.

CSEM S.A.  
Internship

### Near-Field Optical simulations in a RCWA Matlab Platform

JUN 2014 – AUG 2014

Integration of Near Field Optical simulations of micro and nano-structures in a Matlab Platform, in order to increase the accuracy of simulations of grating structures, based on RCWA (Rigorous Coupled Wave Analysis) method and the evaluation of the local absorption.

INPG  
University Challenge

### Head Up Display (HUD) used in dangerous environments

FEB 2014 – MAY 2014

Teamwork project on the development of a MEMS device: market analysis for the proposed product, general block description, electrical and mechanical simulations of the micro mirror structure using COMSOL simulation tool and finally advertisement and presentation of the product to a selected audience.

## Other Skills and Achievements

Languages

Italian (mother tongue)      French (A1 elementary user)  
English (C1 proficient user)      German (A2 elementary user)

Technical Skills

*Cleanroom user:* electron beam lithography, nanoimprint lithography, AFM, SEM, and more  
*Optical engineer:* optical simulators (RCWA, FDTD, FETD, FEM, SIE), optical metrology

Computer Skills

Matlab      Pascal      HTML  
Comsol      C++      Blender  
LabView      Python      Windows OS  
Origin      Latex      Linux OS

Communication and Organization Skills

Developed the capacity to discuss profitably in a multicultural team.  
Good sense of organization and team management.  
Results orientation.

Hobbies and personal achievements

Genius for computers and electronic devices.  
Swimming for 16 years (a few in a Master Team).  
Played guitar for 16 years.  
School-leaving certificate in Music Theory and "Solfeggio".  
First Aid Course (Red Cross).

Recommendation Letters, Articles, Patents and Project Details available on request.

I authorize the treatment of my personal data.

*Giorgio Quaranta*