Francesco Ponzio

Curriculum vitae

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Date of birth: 11/01/1990 | *Nationality*: Italian

EXPERIENCE

Research assistant, Department of Control and Computer Engineering.

Medical image processing involving pattern recognition, segmentation and classification focused to develop innovative tools in the field of Computer Assisted Diagnosis (CAD).

From June 2015

Temporary research fellow, Neuroscience Department, University of Turin.

Systems design for biopotential acquisition (EMG, NIRS, load cell, algometer). Development of a real-time system for human-machine interface (based on pupil segmentation).
Microcontroller programming oriented to estimate respiratory waveform and heart rate using accelerometers.

Feb 2015– May 2015

Intern for BioLab, Politecnico di Torino, Turin, Italy.

Development of a fully automated segmentation method for detecting cells in histological images, focused on the study of the immune response in the pathogenesis of osteoporosis.

Mar 2014 – Oct 2014

Intern for Azienda Sanitaria Ospedaliera San Giovanni Battista, Turin, Italy.

UML modeling to support the introduction of a medical software in the department of haematology.

Mar 2012 – Jun 2012

EDUCATION

Oct 2014	Master of Science in Biomedical engineering (LM-21)	Grade: 103/110	Politecnico di Torino
Oct 2012	Bachelor of Science in Biomedical engineering (L-9)	Grade: 104/110	Politecnico di Torino

PERSONAL SKILLS

Languages	Italian (mother tongue), English (First Certificate in English).
Computer skills	Operating systems: Windows. Programming languages: Matlab (expert), C (advanced), Assembly (advanced), Java, C++ (beginner). Software: Matlab/Simulink, Spike2, SolidWorks, Rhinoceros, MSC Nastran/Patran**,** Office Package.

TECHNICAL SKILLS

Image processing

Development of an algorithm for fully automated detection, classification and counting of cells in histological images during thesis experience.

Excellent proficiency in image processing.

Electronics and signal processing

Microcontroller programming in C and assembly language.
Design of systems for the detection, processing and classification of biomedical signals (in particular EMG analysis).

Good proficiency in programming in C language, in digital information processing and in the fields of metrology and electronic instrumentation.

Biomechanics

Human motion analysis, study of multybody systems dynamics and prosthesis design.

Good proficiency in prosthesis design with CAD systems and in analysis of mechanical stress and strains with FEM software.

Matlab/Simulink

- Image and signal processing.
- Control system design.
- Modeling and analysis of dynamic systems.
- Pattern recognition algorithms (neural networks, fuzzy logic, k-means clustering, genetic algorithms)
- Equation solving.

Strong proficiency with Matlab and Simulink, in particular in the above-mentioned tasks. Large interest in learning new application fields.