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## Francesca Pizzorni Ferrarese

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**Research Field** Medical Imaging - Biomedical Engineering - Information Technology

### Work experience

January 2011 onwards Postdoc Scholarship  
Diffusion MRI analysis, optimization and validation.  
Evaluation of validation metrics in medical image processing.

January 2008 - December 2010 PhD Scholarship  
(Defence scheduled for Spring 2011)  
Diffusion MRI and Tractography analysis, optimization and validation.  
Development and optimization of segmentation algorithms for soft tissues and organs to reconstruct virtual environments for surgical planning and simulation; analysis of the registration process between different image modalities; CT enhancement patterns analysis for tumor staging; evaluation of validation metrics in medical image processing.  
University of Verona

February 2007 - December 2007 Internship  
Development and optimization of segmentation algorithms for soft tissues and organs to reconstruct virtual environments for surgical planning and simulation (surgical simulator). FP7-AccuRobAs  
University of Verona

### Education and training

Summer 2010 Cooperint scholarship winner: 3 months spent as visiting student at École Polytechnique Fédérale de Lausanne. Supervisor: Prof. Jean-Philippe Thiran

2007 Abilitation at Engineering indipendent activity

2004 - 2006 Master of Science in Biomedical Engineering  
Università Campus Bio-Medico di Roma

1999 - 2004 Bachelor of Science in Biomedical Engineering  
Politecnico di Milano

### Participation to conferences, seminars and summer schools

2 – 5 November 2010 10th IEEE International Conference on Information Technology and Applications in Biomedicine  
Corfù, Greece  
Oral presentation – Best student paper award winner

31 August – 4 September 2010 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society  
Buenos Aires, Argentina  
Poster presentation

19 – 20 October 2009 Functional neuroimaging and intraoperative neurophysiology as translational approaches to neurosurgery: a Focus on the motor system  
Tel Aviv, Israel

20 – 24 September 2009 12th International Conference on Medical Image Computing and Computer Assisted Intervention  
London, UK  
Oral presentation

6 – 10 September 2008	11th International Conference on Medical Image Computing and Computer Assisted Intervention New York, USA Oral presentation
25 - 28 June 2008	Computer Assisted Radiology and Surgery – 22nd International Congress and Exhibition Barcelona, Spain Poster presentation
9 – 13 June 2008	The ARIS*ER Conference - IVth international Summer-School Otranto, Italy
5 - 12 September 2007	Surgical Robotics 3rd Summer European University Montpellier, France
20 - 25 November 2005	EMBEC'05, 3rd European Medical and Biological Engineering Conference, Prague, Czech Republic

## Publications

Journal Articles	D. Botturi, F. Pizzorni Ferrarese, G.A. Zamboni, and D. Zerbato (2009), <i>"Preoperative workflow for lymph nodes staging,"</i> International Journal of Computer Assisted Radiology and Surgery: Volume 4, Issue1, 2009
Proceedings - Refereed papers	F. Pizzorni Ferrarese, F. Simonetti, R. Foroni, G. Menegaz (2010), <i>"Registration Accuracy Assessment on Noisy Neuroimages,"</i> in Proceedings of "IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB 2010) ", Corfu, Greece, 3-5 November, 2010 <b>Best Student Paper Award</b>  F. Pizzorni Ferrarese, F. Simonetti, R. Foroni, G. Menegaz (2010), <i>"Validation through Accuracy Prediction in Neuroimage Registration,"</i> in Proceedings of EMBC 2010, Buenos Aires , 31 August - 4 September, 2010  F. Pizzorni Ferrarese, G. Menegaz, A. Le Trotter, and B. Fertil (2009), <i>"A New Paradigm for Geometric Accuracy Prediction in Medical Image Segmentation,"</i> Accepted for presentation at MICCAI 2009 Workshop on Geometric Accuracy in Image Guided Interventions, 20 – 24 September 2009, London, UK.  D. Botturi, F. Pizzorni Ferrarese, G.A. Zamboni, and D. Zerbato (2008), <i>"Preoperative non-invasive staging of lymph nodes,"</i> In: CARS 2008 Proceedings, supplement of IJCARS, Barcelona, Spain.
	A. Choudhary, N. Moretto, F. Pizzorni Ferrarese, and G.A. Zamboni (2008), <i>"An entropy based multi-thresholding method for semi-automatic segmentation of liver tumors,"</i> Proceedings of the 3D Segmentation in the Clinic Workshop, Insight Journal, MICCAI 2008, New York, NY, USA.
Non-Refereed Presentations and Publications	F. Pizzorni Ferrarese, N. Moretto, D. Botturi, A. Choudhary, and G.A. Zamboni (2009), <i>"A new image processing filter for the automatic extraction of organs' internal structures: Application to liver tumors,"</i> European Congress of Radiology ECR 2009, poster presentation.  D. Botturi, F. Pizzorni Ferrarese, D. Zerbato, and G.A. Zamboni (2008), <i>"Automatically Segmented CT Model for Preoperative Lymph Nodes Characterization and Staging,"</i> RSNA 94th Scientific Assembly and Annual Meeting, 30 November – 5 December 2008 , Chicago, USA, poster presentation.  F. Pizzorni Ferrarese and D. Zerbato (2008), <i>"Patient Specific Surgical Simulation with Haptic Feedback,"</i> European Robotics Symposium 2008 - EUROS 2008, 26 – 27 March 2008, Prague, Czech Republic, poster presentation.

## Teaching experience

Academic year 2010 - 2011      *Teaching Assistant* - Exercise classes on Statistics  
Department of Computer Science, University of Verona.

*Teaching Assistant* - Laboratory lessons on Image Processing  
Department of Computer Science, University of Verona.

Academic year 2009 - 2010	<i>Teaching Assistant</i> - Laboratory lessons on Systems and Signals Department of Computer Science, University of Verona.
	<i>Teaching Assistant</i> - Laboratory lessons on Image Processing Department of Computer Science, University of Verona.
Academic year 2008 - 2009	<i>Teaching Assistant</i> - Laboratory lessons on Robotics for high school students (TANDEM Project) Department of Computer Science, University of Verona.

## Personal skills and competences

Mother tongue **Italian**

Other languages

Self-assessment

*European level (\*)*

**English**

**German**

**French**

	Understanding		Speaking		Writing	
	Listening	Reading	Spoken interaction	Spoken production		
<b>English</b>	C1 Proficient user	C2 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
<b>German</b>	B2 Independent user	C1 Proficient user	B1 Independent user	B2 Independent user	B1 Independent user	
<b>French</b>	B1 Independent user	B2 Independent user	A2 Basic user	A2 Basic user	A1 Basic user	

(\*) *Common European Framework of Reference for Languages*

Social skills and competences Team work: I have worked in various types of teams such as research and physicians teams  
Mediating and communication skills

Organizational skills and competences Efficient, punctual and well organized  
Logical – rational and versatile  
Good ability to think and work independently

Technical skills and competences Competent with most of biomedical and electric/electronic instrumentation

Computer skills and competences OS: Windows, Mac OS X, Linux (Ubuntu) and Unix (NetBSD)  
Programming languages: HTML, PNML, NuSMV, JavaScript, SQL, Assembler, Modula2, C++ and Python  
SW Packages: MicrosoftOffice, OpenOffice, iWork, Fluent/Gambit, MatLab/Simulink, Osirix, Maple, VMware, Gimp, Slicer3D, LaTeX, XCode, Visual Studio, MeVis lab, TrackVis, FSL, Elastix, Freesurfer  
Toolkits and libraries: ITK, VTK, IGSTK, Diffusion Toolkit, Connectome Mapping Toolkit, nipy

Artistic skills and competences Silk, glass and decorative wood painting  
Acting

Other skills and competences Advanced Open Water Diver (Biological Research and Photography)  
Verona Green Cross Volunteer  
Love to travel and experience different cultures

Driving licenses A3 (motorcycle)  
B (car)