Curriculum Vitae

Personal information

First name/Surname	**Valeria Serchi**
E-mail	vserchi@gmail.com
Nationality	Italian
Date of birth	13.02.1988
Gender	Female
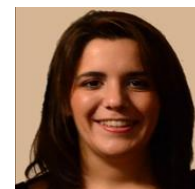
Education and training

Dates	2007-2010
Title of qualification awarded	Biomedical Engineer Bachelor Degree
	Università degli Studi di Bologna - II Facoltà di Ingegneria con sede a Cesena
Dates	2010-2012
Title of qualification awarded	Biomedical Engineer Master Degree
	Università degli Studi di Bologna - II Facoltà di Ingegneria con sede a Cesena
Master Thesis Description:	"*A model of bone remodeling thanks to a mechanical signal on cells*". I tested and improved a model of bone remodeling which aimed at simulating the remodeling of the bone in function of the potential difference on the free boundaries surfaces of the collagen fibers (bone in the nanoscale). Specifically, I implemented a standalone version of the bone remodeling model thanks to the coordination of Comsol Multyphisic, Matlab and Excel.
Dates	2012-2016
Title of qualification	PhD in Bioengineering
	PhD School in Information Science and Engineering - Doctoral Program in Bioengineering, University of Bologna.
Description of the PhD activity:	"*Gaze strategies during obstacle negotiation in presence of distractors: a virtual reality based assessment*". My Ph.D. focused on the development and use of protocols concerning the use of virtual reality, eye-tracking and motion analysis technologies. I developed a virtual reality environment to study the effect of visual distracters on the visuo-motor strategies of subjects during obstacle avoidance tasks. In this set-up I tested both young and older adults.
Fellowship	2012-2015 - Fellowship at the University of Sassari, Italy (AIMA - Advances Imaging and Motion Analysis laboratory, Prof. Ugo Della Croce) *Area of research:* Gait analysis, Kinematics, Eye-Tracking and Virtual Reality.
Fellowship	2016-(*In progress*) - Fellowship at the University of Siena, Italy (EVAlab – Eye tracking & Visual Applications Laboratory, Prof. Alessandra Rufa) *Area of research:* Eye-Tracking, Visual Search and Sequencing, Pupil and Saccades, Fixations analysis. *www.dsmcn.unisi.it/it/eva-lab*
Pre-university studies	Secondary school diploma: linguistic (San Giovanni Bosco, Siena). Italian secondary school diploma (2007).
Mother tongue	**Italian**
Other languages	**English:** *Proficient knowledge (written and spoken)* **French:** *Proficient knowledge (written and spoken)* **German:** *Intermediate knowledge*

Linguistic experiences	ERASMUS LLP (2012) **Language:** French. **Duration of studies:** 6 months. **Foreign country:** Besançon, France – ISIFC (Institut Superieur de Franche-Compté), Prof. Jean-Marie Crolet. PhD abroad period (2014-2015) **Language:** English. **Duration of studies:** 10 months. **Foreign country:** Waterloo, Ontario (Canada) – LMPB (Lifespan and SpychoMotor) Lab, Prof. Michael Eric Cinelli
Social skills and competences	**Volunteering activity:** I participated to fundraisers to help an African village building a school. I also volunteered in the pediatric hospital of Siena, where I was able to confront difficult situations and to entertain the young patients.
Computer skills and technical competences	**Programming languages known:** Java and Python.

Programs experience:

Computation and simulation software:
- **Matlab**. I use Matlab mainly for signal processing. I have experience both in kinematics (*i.e.* gait spatiotemporal parameters and joint angles) and gaze signal analysis (*i.e.* cleaning, fixation and saccades detection algorithms, pupil frequential analysis).
- **Comsol Multiphysic**. I used this software during my Master Degree Thesis project when I had to test and improve a model of bone remodeling.

Virtual Reality Software:
- **WorldViz Vizard**. WorldViz Vizard is a python based software for the development of virtual reality interactive environments. For my PhD project, I used this software to develop a virtual reality environment fed by the motion of the body (integration with optoelectronic technology, Optotrak Certus).

Brain MRI analysis:
FSL, SIENAX (part of FSL5.0) and SPM12.

Statistical software:
SAS and SPSS.

Laboratory instruments experience:

Magneto-inertial sensors:
MTx (XSens), Opal (APDM), FreeSense (Sensorize).

Opto-electronics sensors:
Vicon T20 (Vicon), BTS (BTS Bioengineering) and Optotrak Certus (NDI).

Eye-tracking technology:
- *EyeTrac7* (ASL, wearable technology): I used this system integrated to virtual reality and optoelectronic sensors for the assessment of healthy young and older adults.
- *Tobii TX300* (Tobii, static technology): I validated this device for treadmill walking and virtual reality use (integration with optoelectronic sensors, Vicon T20).
- *Tobii T10* (Tobii, static technology) and *ASL504* (ASL, static technology): I used these devices in clinical assessments of ocular movements (University of Siena, Hospital Le Scotte, "Neurometabolic Diseases Unit") and for visual search and visual sequencing investigations.

Protocols definition experience: Definition of gait and gaze analysis protocols involving young and older adults and cognitive investigating protocols.

Other certificates: ECDL (European Computer Driving License) certificate.

Other competence: driving license.

Publications

M. Racila, V. Serchi, J. M. Crolet, "*Effect of macroscopic loading on nanoscopic signal for cellular activity*," Computer Methods in Biomechanics and Biomedical Engineering, 15 Suppl. 1, 19–20, 2012.

V. Serchi, A. Peruzzi, A. Cereatti and U. Della Croce, "*Use of a remote eye-tracker for the analysis of gaze during treadmill walking and visual stimuli exposition,*" BIOmed research international (Hindawii), 2016.

F. Rosini, V. Serchi, L. Tirelli; L. Di Toro Mammarella, B. Pucci, A. Federico, A. Rufa, "*Progression of oculomotor deficit in a patient with posterior cortical atrophy,*" Journal of the Neurological Sciences, Oct. 2016.

F. Rosini, E. Pretegiani, A. Mignarri, L.M. Optican, V. Serchi, N. Stefano, M. Battaglini, L. Monti, M.T. Dotti, A. Federico and A. Rufa, "*The role of dentate nuclei in human oculomotor control: insights from Cerebrotendinous xanthomatosis.*" The Journal of Physiology, 2017.

Conference Proceedings

V. Serchi, A. Cereatti, P. Federighi, A. Rufa, U. Della Croce, "*An experimental setup for the combined analysis of gaze and gait*," SIAMOC, 2013.

V. Serchi, A. Peruzzi, A. Cereatti and U. Della Croce, "*Tracking gaze while walking on a treadmill: limits of use of a stationary remote eye-tracker*", IV Congresso del Gruppo Nazionale di Bioingegneria (GNB), June 2014, Italy.

V. Serchi, A. Peruzzi, A. Cereatti and U. Della Croce, "*Tracking gaze while walking on a treadmill: spatial accuracy and limits of use of a stationary remote eye-tracker*", 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'14), August 2014, Chicago, Illinois (USA).

V. Serchi, A. Peruzzi, A. Cereatti and U. Della Croce, "*Performance of a remote eye-tracker in measuring gaze during walking*", 20th IMEKO TC4 International Symposium, September 2014, Benevento, Italy.

V. Serchi, A. Peruzzi, A. Cereatti and U. Della Croce,"*Validation of a remote eye-tracker: applications to gait analysis*", ESMAC-SIAMOC 2014, October 2014, Rome, Italy

V. Serchi, A. Cereatti, U. Della Croce and M. E. Cinelli, "*Gaze strategies during obstacle negotiation in presence of distractors: a virtual reality assessment of young and older adults populations*," in OBC conference, Alliston; (Ontario, Canada), *03/2015.*

V. Serchi, A. Cereatti, M. E. Cinelli and U. Della Croce, "*Gaze strategies while negotiating obstacles in a virtual environment with distractors,*" in XVI SIAMOC conference, *Padova; 10/2015,* Volume: 42s.