

ANDREA ZIGNOLI

PERSONAL INFORMATION

Born in Italy, 24 April 1984

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phone (Off.) +39 0464-483503 · (Mob.) +39 3408117956

RESEARCH EXPERIENCE

2013-Present 3rd Year PhD Student, UNIV. OF VERONA, I

*Department of
Neurological and
Movement Science*

Thesis title: Development of integrated tools for bio-mechanical analysis in sport performance: application to cycling . My thesis aims at developing bioenergetic and bio-mechanical models of cycling. The final goal is to apply the optimal-control approach in the attempt to replicate experimental data and predict the system behavior by means of model simulation.

Ref: Barbara PELLEGRINI · +39 0464 483507 · barbara.pellegrini@univr.it
Francesco BIRAL · +39 0461 282513 · francesco.biral@unitn.it

03-09/2015 Visiting Student, UNIV. OF CALGARY, CA

*Human
Performance
Laboratory*

Research activity at the University of Calgary, working on musculoskeletal modeling of human lower limb, with focus on anatomical properties and muscle mechanics.

Ref: Walter HERZOG · +1 (403) 220-8525 · wherzog@ucalgary.ca

2012-2013 Scholarship holder, UNIV. OF VERONA, I

*CeRiSM Research
Center*

Center of Research of Sport Mountain and Health (CeRiSM), collecting data, data analysis.

Ref: Federico SCHENA +39 045 8425120 · federico.schena@univr.it

*09/2010-
03/2011* Erasmus Student, UNIV. OF NOTTINGHAM, UK

Erasmus Project

Structural Integrity and Dynamics (SID) Research Group, developing different mathematical models of driver behaviour.

Ref: Atanas A. POPOV +44 0115 95 13783 · atanas.popov@nottingham.ac.uk

EDUCATION

2008-2011 University of Trento, Italy

Master degree

Final grade: 105/110 · *Mechatronic Engineering (M.Eng.)*
Thesis: *Applications of Control Techniques to the Modeling of the Driver Behavior*
Key Words: Model Predictive Control, Mathematical Modeling.
Advisors: Prof. Francesco BIRAL & Prof. Atanas.A. POPOV

2003-2008 University of Trento, Italy

Bachelor degree

Final grade: 92/110 · *Industrial Engineering (B.Eng.)*
Thesis: *Individuazione Statistica dell'Interfaccia di Cavitazione [in Italian]*.
Key Words: Hydrodynamics, Fluid Mechanics.
Advisor: Prof. Filippo TRIVELLATO

PUBLICATIONS

Feb. 2015 Energy Cost and Kinematics of Level, Uphill and Downhill Running: Fatigue-Induced Changes After a Mountain Ultramarathon

- Journal paper* Gianluca Vernillo, Aldo Savoldelli, **Andrea Zignoli**, Spyros Skafidas, Alessandro Fornasiero, Antonio La Torre, Lorenzo Bortolan, Barbara Pellegrini, Federico Schena
JOURNAL OF SPORTS SCIENCES, DOI: 10.1080/02640414.2015.1022870
- Journal paper* *Sept. 2014* Influence of the world's most challenging mountain ultra-marathon on energy cost and running mechanics
Vernillo G., Savoldelli A., **Zignoli A.**, Trabucchi P., Pellegrini B., Millet G.P., Schena F.
EUROPEAN JOURNAL OF APPLIED PHYSIOLOGY, vol. 114 , n. 5 , 2014 , pp. 929-939.
- Articles from congress or conference papers* *June 2015* Kinect based system for self-adjusting treadmill speed in cross-country indoor ski
Fruet D, **Zignoli A.**, Bortolan L, Gastaldi L, Pellegrini B, Schena F
ICSNS 2015, Vuokatti, Finland, 06/2015
- Articles from congress or conference papers* *July 2014* Application to cycling of a bioenergetic model: Towards a multi-level biomechanical model for global cyclist performance analysis
A. Zignoli, A. Savoldelli, F. Biral, B. Pellegrini, F. Schena
In Journal of Science and Cycling , Proceedings of "World Congress of Cycling Science" , Leeds , 2-3 July , 2014 , pp. 76-77.
- Articles from congress or conference papers* *Sept. 2013* Alterations in the ventilatory responses after the world's most challenging mountain ultra-marathon
Vernillo G, Savoldelli A, **Zignoli A.**, Trabucchi P, Pellegrini B, Millet GP, Schena F
In SPORT SCIENCES FOR HEALTH vol. 9 n. Supp. 1 , Proceedings of "5th National Congress of the Italian Society of the Motor and Sport Sciences" , Pavia (I) , 26-28 September 2013 , 2013 , pp. S15-S15.
- Articles from congress or conference papers* *Sept. 2011* Application of Non-Linear Model Predictive Control to the Driving Task
A. Zignoli, F. Biral, A. A. Popov
In FAST-Zero'11 Proceedings , Proceedings of "First International Symposium on Future Active Safety Technology toward zero-traffic-accident" , Tokyo, Japan , 5th-9th September , 2011 , pp. 1-8.
- Poster* *Sept. 2014* Validation of a bioenergetic mathematical model to estimate oxygen consumption and lactate concentration in cycling
Zignoli A., Skafidas S., Biral F, Pellegrini B., Schena F.
In SPORT SCIENCES FOR HEALTH vol. 10 n. Suppl. 1 , Proceedings of "SISMES VI National Congress" , Napoli, Italy , 26-28 September 2014 , 2014 , pp. S76-S76.
- Poster* *Dec. 2013* Experimentally validated cyclist kinematic model: Towards a multi-level biomechanical model for optimal performance analysis
Zignoli A., Biral F, Pellegrini B, Schena F
In Book of Abstract , Proceedings of "5th International Congress Mountain Sport and Health " , Rovereto, TN (I) , 9-10 December 2013 , 2013 , pp. 30-30.

COMPUTER SKILLS

Basic L^AT_EX, C coding micro-processors (Arduino, Processing)

Intermediate MAPLE, OpenOffice, Microsoft Windows

Advanced MATLAB

MEASUREMENT SYSTEMS

Basic Quark CPET, K4 Metabolimeters

Intermediate DELSYS Electromyography, QUALISYS Motion capture system, SRM power meter, LODE Ergometer with Pedal Force Measurement System

OTHER INFORMATION

Communication Skills 2015 · Oral Presentation at the VII SISMES conference, Padua, I.
2014 · Oral Presentation at the 2nd World Conference of Cycling Science, Leeds, UK.

Teaching activities Academic years 2013-14, 2014-15 · Teaching assistant of the integrative lab didactic within the academic course of *Movement and sport biomechanics*, Master degree in Physical Education and Sport, University of Verona, Verona, Italy.

Languages ITALIAN · Mother tongue
ENGLISH · Intermediate (conversationally fluent)

Research Interests Mathematical modeling · Automatic control · Sport performance · Training adaptations

Interests Outdoor · Photography · Running · Cycling

Andrea Zignoli
September 15, 2015