

# ANDREA ZIGNOLI

Andrea, M.Eng, PhD, Zignoli - Self-employed Engineer

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Andrea-Zignoli

## PRESENTATION

I am committed to the creation of new intelligent technologies that can improve our understanding of how the human body works during exercise.

## CURRENT POSITIONS

Applied Research Scientist - Product Expert

**Athletica Inc.**

Apr 2020 - Ongoing    Remote location

- Part-time back-end lead and product expert.
- Responsible for the development of the data processing & analysis for a web-based endurance training platform.

Consultant

**Tymewear**

November 2024 - Ongoing    Remote location

- AI features development - ML models - back-end development.

Consultant

**Enhance-d**

June 2024 - Ongoing    Remote location

- Development of DL models from sport-wearable data sources.

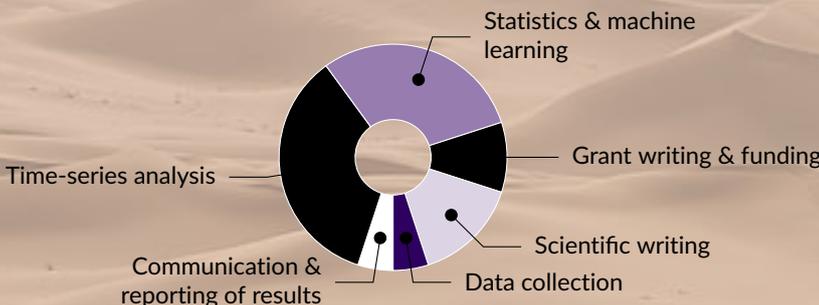
## STACK I USE

**Machine Learning Development**  
Python: Scikit Learn - Pandas - Keras - Tensorflow

**Containerization & Backend Development**  
Docker | Python: Flask | R: Shiny

**Cloud Deployment**  
Heroku | AWS Lightsails

## HOW I SPEND MY TIME



## EDUCATION

PhD in Science of Physical Exercise and Human Movement

University of Verona, Verona, Italy

Jan 2013 - May 2016

M.Eng. in Mechatronics

University of Trento, Trento, Italy

Sept 2008 - March 2011

## METRICS (SCOPUS)

43 peer-reviewed publications  
41% first-author | 8% single-author

329 Citations (H-index 10)  
20.5% (8 documents) in the top 25% most cited documents worldwide

## CODING SKILLS

Python    R    Matlab

## STATISTICS & ML

(RM)-ANOVA    Multi-linear models  
PCA    SVM  
Deep learning    CNN    LSTM    GAN

## DATA PROCESSING

GPS    Power meters    EMG    NIRS  
Lactate monitors    Pressure insoles  
CPET    IMU    Motion capture  
Force platforms    Optitrack    HRV

## LANGUAGES

Italian  
English



## WORKING EXPERIENCE

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### Teaching Fellow

Department of Cellular, Computational and Integrative Biology - CIBIO, University of Trento

📅 Dec 2021 – Ongoing 📍 Trento, I

- Instructor for the 3-credit module on Modeling within the Technology and Innovation in Sports course in the Master's program in Exercise Science and Human Movement

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### Fellow Researcher

Department of Industrial Engineering, University of Trento

📅 Dec 2020 – Ongoing 📍 Trento, I

- Development and deployment of mathematical models for sport technology applications.

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### Associate Editor

Sports Engineering, the official journal of the International Sports Engineering Association (ISEA)

📅 Oct 2021 – Ongoing 📍 Remote location

- Handling and reviewing research papers.
- Creating partnerships with sport tech companies, governing bodies, and organising committees.

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### Applied Research Scientist

Supersapiens

📅 Apr 2020 – Apr 2024 📍 Remote location

- Data analysis and report creation (internal, coaches, athletes, users)
- Product design and scientific support

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### Functional evaluation centre

CeRiSM Sport Mountain and Health Research Centre

📅 Apr 2012 – Oct 2017 📍 Trento, I

- Data collection and athlete functional evaluation
- Scientific writing

## KEY PUBLICATIONS

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### 📄 Journal Articles (selection)

- Zignoli, Andrea, Federico Y Fontana, et al. (2023). "Association between pre-exercise food ingestion timing and reactive hypoglycemia: Insights from a large database of continuous glucose monitoring data". In: *European journal of sport science* 23.12, pp. 2340–2348.
- Zignoli, Andrea, Antoine Godin, and Laurent Mourot (2023). "Indoor running temporal variability for different running speeds, treadmill inclinations, and three different estimation strategies". In: *PloS one* 18.7, e0287978.
- Zignoli, Andrea, Alessandro Fornasiero, et al. (2020). "Oxynet: a collective intelligence that detects ventilatory thresholds in cardiopulmonary exercise tests". In: *European Journal of Sport Science*, pp. 1–38.

## SIDE PROJECTS I LEAD

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🫁 Oxynet  
[www.oxynet.net](http://www.oxynet.net)

Process and interpret cardiopulmonary exercise tests with AI technologies.

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📱 Workout Reserve  
[github.io](https://github.io)

The Athletica Workout Reserve Connect IQ App for endurance athletes.

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🚲 CURVA  
[bitbucket.org](https://bitbucket.org)

Cycling trajectories optimized using optimal control.

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📹 Drone Footage  
[github.com](https://github.com)

Processing and analysis of drone footage for cycling applications.

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🏃 PRISVV  
[bitbucket.org](https://bitbucket.org)

Running step frequency analysis using IMUs and deep learning models.

## REFEREES

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Prof. Paul B. Laursen

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