

Project: *Cardiorespiratory-based personalization of aerobic training in youth soccer players*

Principal Investigator: Marcel Młyńczak, PhD, DSc

Position in the Project: PhD student (scholarship) – 2 positions

Institution: Institute of Metrology and Biomedical Engineering, Faculty of Mechatronics, Warsaw University of Technology

Requirements

1. Master's degree in biomedical engineering or similar, with PhD enrollment (best if after the mid-term assessment)
2. Knowledge and experience in carrying out scientific research, with a particular focus on physiological data processing and analysis.
3. Expertise in machine learning and data processing.
4. Experience in preparing scientific publications and disseminating the results at scientific conferences.
5. Participation in the implementation of research or research and development grants.
6. Fluent spoken and written English (given the specific nature of the research involving children and adolescents, proficiency in Polish would also be desirable).
7. Strong motivation and passion for scientific work both independently and as part of a team in an interdisciplinary environment, with the ability to creatively propose solutions to problems at hand, pay close attention to detail, and meeting deadlines.

General description of the project

Warsaw University of Technology, Faculty of Mechatronics, is conducting research under the Opus 29 grant entitled "Cardiorespiratory-based personalization of aerobic training in youth soccer players", financed by the National Science Centre.

The scientific goal of the project is to personalize aerobic training in youth soccer players with the aim of investigating whether heart rate (HR) and heart rate variability (HRV)-guided training, modulated by breathing, leads to greater improvements in aerobic and anaerobic performance as well as autonomic cardiac regulation compared to standardized training. It also explores whether controlling breathing pace and frequency supports post-training and post-match recovery by reducing resting heart rate, potentially expanding the window for subsequent performance goals.

As part of the research tasks under the NCN project, the holder of the doctoral student scholarship position will be required to conduct scientific research, in particular, to preprocess physiological signals (including filtering, segmentation, feature extraction), to analyze HR, HRV, respiratory and motion parameters, guided by metadata and study protocols, to develop and validate statistical and machine learning models, to construct centile grids and to assess their diagnostic relevance, and to evaluate intervention effects (pre-post comparisons, control vs. experimental groups). The recruited PhD student will also participate in the preparation of scientific publications and dissemination of project results at scientific conferences.

What we offer

1. Scholarship contract and competitive remuneration package.
2. Work in a competent scientific group with an excellent research environment and international cooperation, promoting publications in high-impact journals.
3. Financial support for abroad scientific visits, attending conferences, and publishing research papers.
4. Encouragement and support in preparing grant applications and general career development.

Type of NCN Project: Opus 29 – NZ.

Application deadline: 17.06.2026, 23:59.

Results available on: 22.06.2026.

Submit documents to: marcel.mlynczak@pw.edu.pl

Conditions of employment

PhD scholarship total: 120 000,00 PLN gross (including taxes) for 2 years (24 months) for each position.

Preferred time of starting position: 1st July 2026.

Additional information

To apply, please send your application, including a motivation letter, CV with the list of your publications and achievements, Master's degree thesis, alongside with contact information to the scientific supervisor and other referees (if available) to the following e-mail address: marcel.mlynczak@pw.edu.pl (deadline 17.06.2026). Incomplete applications will not be considered. We thank all applicants for their interest; however, only selected candidates may be invited for an interview. Applications will be accepted until the position is filled. If the winner of the competition resigns from signing the contract, we reserve the right to choose the next best person from the ranking list.

RODO statement

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, all candidates are requested to provide consent to the processing of his or her personal data by the institution which carries out the recruitment process. **Thus, please include in your application the following statement: "I hereby agree to the processing of my data included in the application documents by Warsaw University of Technology, Warsaw, Poland, to carry out the recruitment process."** Your personal data is processed on the basis of the Article 6 Part 1 Points (c) and (f) of the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR; Official Journal of the European Union L 119/1).