Dublin, Ireland
dermot.sheridan1@gmail.com

Dermot Sheirdan

Sports Performance Data Scientist

Portfolio: CRT-AI.com
github.com/Shero6
linkedin.com/in/dermotsheirdan

A highly competent and professional PhD(c) in Data Science specialising in machine learning applications for athlete monitoring. Extensive experience in education and elite sports performance, paired with a scientific mindset and strong analytical skills. Skilled in leveraging data-driven insights and building relationships between multidisciplinary teams to improve decision making and optimise outcomes. Aspiring to apply my expertise in data analysis, machine learning, and performance monitoring to contribute to cutting-edge research and data-driven decision-making in a collaborative environment. Committed to driving innovation and providing actionable insights through advanced data solutions.

Skills

Tools and Languages	Python, R, SQL, Git, LaTeX, Markdown
Machine Learning	Scikit-learn, TensorFlow, PyTorch, Pandas, NumPy
Data Visualization	Matplotlib, Seaborn, Plotly, Tableau, PowerBI
Big Data and Processing	MySQL (database creation and management), NoSQL, Spark
Communication	Academic writing, Presenting research findings

Technical Experience

PhD Candidate **October 2020 — Present**
Centre for Research and Training in Artificial Intelligence (CRT-AI), Dublin City University *Dublin, Ireland*

- Developed machine learning models to predict the ratings of perceived exertion (RPE) and oxygen uptake (VO_2)in team sports using wearable sensor data.
- Implemented advanced feature engineering techniques for time-series data, using Python libraries such as Pandas, Dask, and Scikit-learn to preprocess and analyse large datasets.
- Conducted multicollinearity analysis, recursive feature elimination, and variance inflation factor (VIF) checks to optimize model performance.
- XGBoost, Random Forest, and Gradient Boosting were applied for predictive analysis, achieving significant improvements in model accuracy for athlete monitoring systems.
- Designed data pipelines to process and resample GNSS data from 10 to 2 Hz, ensuring efficient handling of large datasets.
- Dynamic visualisations and dashboards created to present training load insights to sports scientists and coaches using Python (Matplotlib, Plotly) and Tableau.
- Published findings in peer-reviewed journals and presented at international conferences, showcasing the impact of data-driven methods in sports science.

Visiting Scholar **February 2024 — May 2024**
KU Leuven *Leuven, Belgium*

- Conducted research on estimating oxygen uptake in simulated team sports using machine learning models and wearable sensor data.
- Designed hybrid models that combine feature engineering and deep learning techniques for time series prediction tasks.
- Collaborated with international researchers to co-author a paper currently under review in a high-impact journal.

Sport Scientist **September 2023 — Present**
Cavan GAA, Breffni Park *Cavan, Ireland*

- Built an athlete performance monitoring system integrating GNSS data, subjective player feedback, and automated data pipelines for weekly reporting.
- Processed large-scale training load data using Python to extract key metrics and identify trends over time.
- Automated the generation of visual reports for individual and team training loads, facilitating communication with coaches and stakeholders.
- Collaborated with cross-functional teams to design data-driven strategies for injury prevention and load optimisation.

Education

PhD Candidate, *Centre for Research and Training in Artificial Intelligence (CRT-AI), Dublin City University* 2020 — 2024
- Thesis: Enhancing Athlete Monitoring: A Machine Learning Approach for Predicting the Rating of Perceived Exertion and Oxygen Uptake in Team Sports

MSc by Research in Exercise Physiology, *Dublin City University* 2018 — 2020
- Thesis: "The Effects of Gaelic Football Match Play on Markers of Muscle Damage, Delayed Onset Muscle Fatigue, and Neuromuscular Performance" [View Online].

National Induction Programme for Teachers in Post-Primary Schools, *University College Dublin* 2010 — 2011

Bachelor of Science in Physical Education with Biology and Higher Diploma in Education, *Dublin City University* 2006 — 2010

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Activities

MLSA24 Workshop, European Conference on Machine Learning (ECML PKDD), Presenter on "Automated Detection of Shot Events Using GNSS Data" (Workshop co-located with ECML PKDD in Vilnius, Lithuania) [View Online] September 2024

Visiting Scholar, KU Leuven, Collaboration project on "Estimating Oxygen Uptake in Simulated Team Sports Using Machine Learning Models and Wearable Sensor Data" (Research paper currently under review) February-May 2024

Biology of Sport Journal, Author "Predictive Analysis of Ratings of Perceived Exertion in Elite Gaelic Football" January 2024
Published in *Biology of Sport*, Volume 41(4):61–68. DOI: [View Online]. Affiliation: School of Computing, Dublin City University, and Insight Centre for Data Analytics, Dublin City University.

ACSM World Congress, Denver, Poster Presentation on "Effects of Gaelic Football Match Play on Markers of Muscle Damage, DOMS, and Neuromuscular Performance" (Board 280). Published in *Medicine and Science in Sports and Exercise*, Volume 49(5S):966. DOI: [View Online]. Affiliation: Dublin City University June 2017