

JUNE 5 - 9, 2023

INTERNATIONAL SUMMER SCHOOL

FACULTY OF SPORTS SCIENCE

UNIVERSITY OF ROUEN NORMANDY

‘Collective behaviours & Sport performance analysis in Futsal’



The University of Rouen Normandy and our campuses

The University of Rouen Normandy (URN) is a comprehensive university offering an innovative educational programme of over 300 undergraduate, graduate and PhD programmes to its 34,000 students, which is overseen by the three academic divisions: i) Materials, Energy, Digital Science and Environment, ii) Chemistry, Biology and Health; iii) Humanities, Culture and Social sciences. Research is conducted within its 40 certified research units, 13 of which are associated with national research organisations.

With 230 institutional partners in Europe and partnerships in over 50 countries in the world, the URN hosts more than 3,000 foreign students and 200 exchange students.

The Faculty of Sport Sciences is Ranked 146 (Shanghai Ranking). The faculty has been chosen as a training location for gymnastics during the Olympic Games 2024 (Paris).

Located at 1:30 from Paris by train and 1:45 by car as well as just 40 minutes from the seaside, the city of Rouen enjoys a beneficial geographic location.



The Summer School of the Sport Sciences of the University of Rouen Normandy

Sport performance analysis in competition and training

Sport performance analysis in competition and training is more and more monitored thanks to recent research in data sciences and technological development for motion capture such as GPS, LPS, inertial measurement unit, and multi-camera system. There is a real need to provide methods, tools and skills to correctly use these new devices, as well as to approach performance analysis and collective behaviours following a sound theoretical framework. Indeed, the risk of collecting multi-sourcing data is to shift toward data-driven approach rather than following theoretical framework supported by key concepts, methodology, feedback to coaches and pedagogy for training. This Summer school roots in the Complexity Sciences and intertwine various disciplines such as physics and mathematics through dynamical system theory, ecological psychology, complex system approach of neurobiology, interaction network in computer sciences, etc. The complexity sciences recently showed a growing interest to understand and to explain the individual and collective behaviours in various contexts (competitive vs. collaborative, routine vs. perturbation), especially in sport (Davids et al., 2014) and will be the heart of this Summer School.



Objectives, aims and acquired skills

In the Summer School, we will focus our attention on multi-sourcing data collection and of collective behavior and sport performance in Futsal.

The objectives are to acquire:

- skills in collecting multi-sourcing data like kinematics and events from video (coding and sequencing using SportCode or Dartfish) and LPS system
- skills in data visualisation and signal processing in order to intertwine data of various nature
- skills in determining dependant variables to assess individual and collective behaviours, and network interactions in order to analyse sport performance outcome accordant to the task goal.

Content and necessary prior knowledge

Prior knowledge necessary in the relevant field:

- Basic skill in programming (Python, Matlab, R), signal and image processing, data visualisation
- Skills in using motion capture systems such as multicamera system, GPS, accelerometer, inertial measurement unit and LPS, in order to track athletes kinematics.
- Basic skill in using Dartfish and SportCode software

English level: B2

Level : Master

Number of hours: 35

Number of ECTS Credits : 6 (a certificate will be provided to all attendees)

The Summer School programme

	Monday June 5	Tuesday June 6	Wednesday June 7	Thursday June 8	Friday June 9
	Introduction & Performance analysis	Identifying performance problems & Performance analysis	Intervention Design	Data Collection in Futsal	Intervention & Performance Analysis + Student Preparation
Morning sessions	9:30 to 10:00 - Introduction & welcome <i>Ludovic Seifert, URN, FR</i> 10:15 to 11:00 - Performance Analysis in futsal <i>Clément Lerebours/ Raphael Reynaud/Kévin David, French Federation of Football</i> 11:15 to 12:00 - Performance Analysis in futsal <i>Bruno Travassos, University of Beira Interior, PT</i>	9:00 to 9:45 - Introduction to Performance Analysis with Dartfish / SportsCode <i>Brice Guignard, URN, FR</i> 10:00 to 10:45 - Passing Network analysis <i>Quentin Bourgeois, URN, FR</i> 11:00 to 12:00 - Group Work	9:00 to 9:45 - Intervention Design <i>Clément Lerebours/ Raphael Reynaud/Kévin David, French Federation of Football</i> 10:00 to 12:00 - Group Work	9:00 to 12:00 - Intervention + Data collection	9:00 to 12:00 - Group work
Lunch (12:00 - 13:30)	Lunch & Group Work	Lunch & Group Work	Lunch & Group Work	Lunch & Group Work	Lunch & Group Work
Afternoon sessions	13:30 to 16:00 - Data collection in Futsal 16:15 to 17:00 - Performance Analysis and Collective Behaviour in Futsal <i>Bruno Travassos, University of Beira Interior, PT</i> 17:00 to 18:00 - Group work	13:30 to 14:15 - Collective behaviour analysis from positional data <i>Guillaume Hacques, URN, FR</i> 14:30 to 17:00 - Group Work 17:30 to 18:30 - Social : Futsal	13:30 to 14:15 - Representative Learning Design and Constraint-led approach in Team Sport <i>Matt Dicks, Portsmouth Univ, UK</i> 14:30 to 17:00 - Group work 17:00 - Presentation of Performance analysis + Intervention 17:30 to 19:00 - Social: Visit Rouen / Climbing session Arkose / mountain biking Green Forest	13:30 to 17:00 - Group work 17:30 to 18:30 - Social : Futsal	13:30 to 15:30 - Student Presentations + Reflections on the Summer School 16:00 to 19:00 - Social: Visit Rouen / Climbing session Arkose / mountain biking Green Forest 19:00 - Restaurant all together

Contact and information

Pedagogical fees and accomodation funded by the University of Rouen Normandy.

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Deadline for applications: May 15, 2023 at 5:00 pm CET