

**Title: Developing a Digital Twin of Paediatric Care in Northern Ireland for Forecasting and Informing Policy Decisions.**

The proposed research is to develop a digital twin of the paediatric care in Northern Ireland powered by a hybrid AI predictive simulation model. The project will commence with the development of a model to represent the child population of Northern Ireland and their access to paediatric healthcare using data from all children born in Northern Ireland over the past three decades. This research is in partnership with the Belfast Health and Social Care Trust (BHSCT) and will be the first in its kind for establishing a picture of the current care provision of children in Northern Ireland and serve as a means of illustrating the flow of patients across the services. The model will then form the basis for formulating a digital twin of the system allowing for different scenarios to be explored and visualised to support policy making and decision making in the child healthcare setting.

Project supervisors: Professor Adele Marshall (Professor of Statistics, School of Maths & Physics), Dr Peter Cosgrove (Consultant Paediatric Emergency Medicine and Honorary Lecturer at QUB, School of Medicine, Dentistry and Biomedical Sciences). and External Supervisors Christine Kennedy (BHSCT), Rachel Stewart (BHSCT) and Dr Mark Cross (BHSCT).

**Funding available: CAST award**