

**Wednesday 24 July 2024**

**11:00-12:00 President's Invited Speaker (Main Room)**

**Biostatistics in the AI era**

**Prof. Chris Holmes (University of Oxford, UK)**

Artificial intelligence (AI) has emerged as a valuable tool in data science and of growing influence in medical research, with an accelerating pace of innovation. The rapid development of AI is driven, in part, by the ongoing expansion in computer power and data availability. However, the same features that make AI such a valuable resource make it vulnerable from a statistical perspective. This contradiction is particularly pertinent for medical science. Techniques that are adequate for targeted advertising to consumers or that enhance weather prediction may not meet the rigorous demands needed for risk prediction or diagnosis in medicine.

I will discuss the statistical challenges in developing and targeting AI to biomedical data analysis and the delicate balance that researchers face in wishing to learn as much as possible from data while ensuring that data-driven conclusions are accurate, robust, and reproducible. I will emphasise examples where statistical analysis benefits from using AI, and in response, where the field of AI benefits from statistical thinking.