

EMBO WORKSHOP

Computational models of life: From molecular biology to digital twins

Interview with the PerMedCoE grant recipient Yufan Liu

Yufan Liu is a PhD student at the University of Surrey. Her research focuses on using machine learning to understand the role of omics in chemical safety.

What is your main professional interest?

My thesis work revolves around the application of machine learning and omics techniques to unravel the intricacies of chemical toxicology mechanisms. Among my key achievements, I leveraged machine learning models to decipher metabolomics data from COVID-19 patients, identifying significant metabolite biomarkers during distinct infection stages. Moreover, I innovated a multi-omics data analysis methodology to discern the nuanced dose-dependent and temporal shifts in regulatory pathways arising from chemical interferences. I also developed a semi-automated pipeline using GPT-4 and fine-tuned models, have streamlined the extraction of critical data from extensive scientific literature, achieving high accuracy in both classification and information extraction.

What were your expectations from the EMBO Workshop “Computational models of life: From molecular biology to digital twins”?

My expectation for the EMBO Workshop was to immerse myself in the latest developments in molecular biology and digital twins, as well as to engage in meaningful dialogues with fellow researchers and industry experts. I also viewed this as a critical opportunity to establish collaborative networks to augment my research endeavours and contribute to the scientific community.

Have these expectations been met?

The workshop indeed met my expectations. It was enlightening to delve into the latest advancements in molecular biology and the emerging field of digital twins. Beyond theoretical knowledge, the workshop served as a platform for connecting with other researchers, sparking discussions on potential collaborations. These interactions not only expanded my knowledge but also opened avenues for future research partnerships, perfectly aligning with my professional goals.

What is your feedback regarding gender balance and equality in this workshop?

The workshop was commendable for its inclusivity and diversity, showcasing a balanced representation of gender among participants and speakers. This diversity fostered a rich exchange of ideas and perspectives. The staff's commitment to accommodating varied needs and ensuring everyone's safety, especially during an unexpected COVID-19 surge, was remarkable. Additionally, the breadth of topics discussed catered to a wide range of interests and specialties, which further enhanced the inclusive nature of the event.

