Interoperability in biobanking:
OMOP for standardising medical outcome data

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Speakers:

Dr. Petr Holub

Dr. Holub is Chief IT Officer (CIO) in BBMRI-ERIC and Associate Professor of computer science at Masaryk University. His background is both in computational sciences and computer science. Since setup of BBMRI-ERIC, he has lead design and implementation of the portfolio of its IT services and research, facilitating sharing of biobanking resources and health data for medical research.

He is co-founder and co-lead of RationAI research group at Masaryk University, focusing on rational and conservative application of explainable artificial intelligence to biomedical challenges. He was head of the Department of Communication Technologies at Institute of Computers Science, as well as architect of advanced multimedia and collaborative systems of the Czech national e-infrastructure at CESNET. His research in computer networks and multimedia processing and in bioinformatics and applied artificial intelligence has lead to more than 80 research papers in established computer science, bioinformatics and medical informatics journals (including Nature Communications and Nature Review Genetics) and ranked conferences, and co-inventorship of 2 patents. He has 585 citations in WoS (H-index 15) and 1,800 citations in Google Scholar (H-index 22). He has received Best Open-Source Software Award by ACM Multimedia SIG. He is a co-founder of Comprimato company, which commercializes research results in acceleration of compression algorithms.

Dr. Esmond Urwin

Dr. Urwin studied his undergraduate degree (Manufacturing Engineering (BEng.(Hons)) whilst at the University of Hertfordshire and then spent time as a production manager and trouble shooter (à la Sir John Harvey Jones) for a multinational food company working across the UK and Europe. However, a change in direction was desired and he furthered his studies undertaking postgraduate degrees at the University of Nottingham (Manufacturing Engineering & Management (MSc.), and Knowledge Engineering (PhD)). After a post-doctoral position at Nottingham, he moved to Loughborough University where his academic career focused upon knowledge management, informatics, interoperability and ontology design predominantly for the defence and aerospace industries. This focus has drawn him to standardisation activities for which co-wrote the international standard ISO 20534 for Industrial automation systems and integration.

Moving back to the University of Nottingham in 2020, Esmond was part of the large CO-CONNECT project during the COVID-19 pandemic. His work focussed upon the application and implementation of OHDSI's OMOP common data model to structure, represent and standardise disparate national COVID-19 health datasets for discoverability. Additionally, he developed a national COVID-19 serology laboratory data standard in conjunction with the National Pathology Exchange (NPEx) and the NHS for better reporting of granular levels of COVID-19 serology data nationally. To further support healthcare terminology standardisation and data representation, he has developed with the University of Dundee the CO-CONNECT structured healthcare vocabulary which contains concepts that represent serology, medical conditions, medical observations, ethnicity, laboratory systems and specimens. The standardisation of specimen concepts directly supports the BBMRI-ERIC Minimum Information About BIobank data Sharing (MIABIS).

Esmond's current position for the NIHR Nottingham Biomedical Research Centre at the University of Nottingham focuses upon healthcare data engineering and standardisation for discoverability, interoperability and reuse.