



RESEARCH & INNOVATION SCOTLAND
Case Study

**Development of an Interdisciplinary Network Integrating Data Science with
Brain Health Research**

Members involved: SINAPSE, SULSA, SICSA, DataLab, DHI, CENSIS

In collaboration with: Scottish Dementia Research Network



As part of the SICSA Annual Conference held online in early October 2020, a cross-pool session on **Data Sciences and Brain Health across the Life Course** was co-organised by the medical imaging research pool [SINAPSE](#), life sciences research pool [SULSA](#), informatics and computer science research pool [SICSA](#), and the [Scottish Dementia Research Consortium \(SDRC\)](#).

The session addressed multidisciplinary challenges in the early detection of neurodegenerative conditions such as Alzheimer's disease, and new opportunities to build capacity in Scotland by integrating data science with brain health research areas of neurobiology and neuroimaging.

Brief presentations were given by a panel of researchers who are working to drive the interdisciplinary collaborations required to address these challenges:

- **Gerry Thompson**, Senior Clinical Lecturer in Radiology at University of Edinburgh and Honorary Consultant Neuroradiologist for NHS Lothian, represented SINAPSE with a presentation on brain imaging data for dementia biomarker discovery.
- **Bettina Platt**, Chair in Translational Neuroscience at University of Aberdeen, represented SULSA with a presentation on translational, multidisciplinary approaches in dementia research, from experimental to (pre-)clinical domains.
- **Mike Chantler**, Professor of Computer Science at Heriot-Watt University, represented SICSA with a presentation on topic modelling and data visualisation to identify content and trends within large free-text datasets. Among his examples was the [research.scot](#) web application that interactively maps research publications from 15 Scottish universities since 2014.
- **Graciela Muniz Terrera**, Senior Lecturer in Biostatistics and Epidemiology at University of Edinburgh, represented SDRC with a presentation on challenges that remain for delivering clinical impact from predictive models of brain health and dementia risk.



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Panellists' presentations set the scene for an interdisciplinary brain health research network being jointly developed by SINAPSE, SULSA, SICSA and SDRC to enable advancements in innovative computational and mathematical methods for dementia prediction, analysis, and modelling which will be applicable in a routine healthcare setting. The new research network (as well as this conference session) was developed out of the recent collaborative Research Innovation Scotland initiative.

After the presentations, open discussion with session participants addressed difficulties that researchers commonly encounter around data sharing and data management. A relevant UK-wide initiative mentioned in discussion was the development of "data metrology" infrastructure by the National Physical Laboratory, which led to the proposal of exploring support for a similar central resource to facilitate data-intensive research and innovation in Scotland. Also discussed were natural links with Scottish Innovation Centres that share interests related to the new brain health research network: the DataLab, DHI, and CENSIS.

To enable the productive exchange of ideas to continue after the session drew to a close, the launch of a new mailing list was announced, open to anyone wishing to participate in new collaborations crossing the disciplinary boundaries of clinical brain research, preclinical brain research, and computing science.