

Imaging, Modelling and Statistical Advances in Quantitative Neuropathology

14 March 2025 – 10 Merton Street, Swire Room, University College, Oxford

Preliminary programme is below.

8:30-9:00: Registration with coffee tea

9:00-9:15: Opening session

9:00-9:15 – David M, David H and Thibault L

Introduction to the workshop, purpose, sessions and housekeeping.

Chair Dr David Holcman

Session 1: Quantitative neuropathology and current tools

9:20-9:45 – Dr David Menassa on microglial development, pathology and challenges in digital pathology.

9:50-10:15 – Professor Laura Parkkinen on novel tools to study neurodegeneration (i.e. spatial transcriptomics, etc.) and on resources/tissues available from the Oxford Brain Bank.

10:20-10:45 – Professor Zane Jaunmuktane on novel tools in clinical neuropathology diagnosis.

10:50-11:00 – Dr Clara Limbeck on the Oxford biobank and available resources.

11:00-11:30 – Coffee/tea break + poster session

Chair Dr David Menassa

Session 2: Modelling tools in biology/pathology: applications

11:30-11:55 – Professor David Holcman on modelling approaches in biology and medicine: present and future.

12:00-12:25 – Professor Amanda Sierra on microglial phagocytosis and modelling tools to understand microglial immunocompetence in mouse and man.

12:30-12:55 – Professor David Rowitch on novel methods to study neuronal vulnerability and astrocyte dynamics in developmental disease.

1:00 -1:25 – Professor Klas Blomgren on microglial signature in paediatric cancers.

1:30-2:30 – Lunch and posters

Chair Professor Thibault Lagache

Session 3 Flash talks for early career researchers

2:30-2:40 – Mr Theo Perochon on DeepCellMap.

2:40-2:50 – Dr Duncan Martinson on data-driven mathematical modelling applied to microglial development.

2:50-3:00 – Dr Ulrich Dobramysl on sensing, triangulation and chemical gradients.

3:00-3:10 – Abstract 4 (TBC).

Plenary lecture

3:15-3:45 – Professor Philip Maini, FRS on spatiotemporal models to help us understand embryonic self-organisation or cancer growth.

3:45-4:10 – Coffee/tea break + posters

Chair Dr David Holcman

Session 4: Statistical tools in neuroscience/pathology

4:10-4:35 – Professor Thibault Lagache on statistical methods in pathology and imaging.

4:35-5:00 – Dr Ed Cohen on statistical and stochastic methodology for image and signal analysis.

5:00-5:30 – Closing remarks, flash talk and poster prizes (DAM, DH, TL)