Spatial Models of Tumours, CONTRA Innovative Training Network Workshop

Organized by The Institute of Cancer Research, London, UK

24 – 26 of November 2020

24th of Nov 2020: Lecture by Invited Speakers (open for external attendees)

9:00 Start, Host to give introduction

9:05 **The role of macrophages in cancer metastasis and therapy resistance**
Dr. Binzhi Qian, Reader, Principal Investigator Chancellor's Fellow & CRUK Career Development Fellow Edinburgh Cancer Research UK Centre & MRC University of Edinburgh Centre for Reproductive Health University of Edinburgh

Chair: Yinyin Yuan

9:35 Q&A

9:50 **DEPICTION: extracting insight from deep learning models in computational biology.**
Dr. María Rodríguez Martínez, IBM Zurich

Chair: Ewa Szczurek

10:20 Q&A

10:35 Coffee Break

10:50 **Early disease detection and the art of asking clinical questions**
Marcel Gehrung, CEO at Cyted

Chair: Ewa Szczurek

11:20 Q&A

11:35 Lunch Break

13:00 **Spatial models for forecasting tumour growth and survival**
Dr. *Robert Noble, Lecturer in Applied Mathematics at City, University of London*

Chair: Yinyin Yuan

13:30 Q&A

13:45 **Integrated Imaging and Analysis to understand the biological complexity of tissues**
Dr. Stephanie Ling, Associate Principal Scientist, Imaging and Data Analytics, AstraZeneca

Chair: Nuria Lopez

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14:15 Q&A

14:30 Coffee Break

14:45 **3D imaging of solid tumors**
Dr. *Anne Rios, Junior Principal Investigator, Princess Máxima Center for Pediatric Oncology*

Chair: Nuria Lopez

15:15 Q&A

15:30 Close

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25th of Nov: Journal Club (CONTRA student only)

9:00 Paper 1: Michael Schneider, Spatial Heterogeneity in the Tumor Microenvironment

9:20 Paper 2: Paula Martin-Gonzalez, 3D-printed moulds of renal tumours for image-guided tissue sampling in the clinical setting

9:40 Paper 3: Hanna Kranas, SPOTlight: Seeded NMF regression to Deconvolute Spatial Transcriptomics Spots with Single-Cell Transcriptomes

10:00 Paper 4: Jose Bonet, Spatial Organization and Molecular Correlation of Tumor-Infiltrating Lymphocytes Using Deep Learning on Pathology Images

11:20 Paper 5: Nico Borgsmueller, Spatially constrained tumour growth affects the patterns of clonal selection and neutral drift in cancer genomic data

11:40 Coffee break

12:00 Paper 6: Artur Dondi

12:20 Paper 7: Senbai (Ethan) Kang, Modeling Cell-Cell Interactions from Spatial Molecular Data with Spatial Variance Component Analysis

12:40 Paper 8: Shadi Shafighi, Integrating spatial gene expression and breast tumour morphology via deep learning

13:30 Lunch

14:00 Paper 9: Reda Keddar, Local mutational diversity drives intratumoral immune heterogeneity in non-small cell lung cancer

14:20 Paper 10: Mandi Chen, PathologyGAN: Learning deep representations of cancer tissue

14:40 Paper 11: Mohammadreza Mohaghegh Neyshabouri, Spatial transcriptomics inferred from pathology whole-slide images links tumor heterogeneity to survival in breast and lung cancer

15:00 Coffee break

15:20 Paper 12: Fausto Fabian Crespo Fernandez, How many samples are needed to infer truly clonal mutations from heterogenous tumours?

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15:40 Paper 13: Monica Valecha, Spatial structure governs the mode of tumour evolution

16:00 Paper 14: Hrvoje Misetic, A spatial model predicts that dispersal and cell turnover limit intratumour heterogeneity

16:20 Paper 15: Yeman Hagos, Topography of cancer-associated immune cells in human solid tumors

16:40 Closing

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26th of Nov 2020: Paper writing training (CONTRA student only)

By Katie D'Arcy, Freelance Training Consultant & Career Coach

9:30   Lecture 1. The Writing Process - writing with clarity and purpose
11:00   Peer review (pair work)
12:00   Writing time (approx 40mins)
13:00   **Lunch break**
14:00   Lecture 2. The Writing Process - overcoming writer's block and procrastination
15:15   Peer Review
16:00   Writing time
16:45   Q&A
17:30   FINISH (or before depending on Q&A)