Rob Scrutton

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Research Interest

- Developing high-throughput microfluidic assays for biophysical data generation
- Leveraging image-based machine learning for characterising bio-molecular states
- Predicting protein co-localisation using natural language processing.

My research demonstrates a strong ability to characterise biophysical mechanisms through novel method development. By implementing machine learning based data analysis into a high-throughput screening platform, I have developed a strong understanding of the challenges in generating and analysing real world datasets.
I have demonstrated experience in both computer vision for characterising phases of biomolecular species from microscopy data, and natural language processing for prediction of condensate recruitment from protein sequence.

Education

PhD in Chemistry — University of Cambridge, UK
St John's College — 2022 - 2026
Supervisor: Prof. T. P. J. Knowles
Topic: Machine Learning and Experimental Physical Chemistry to characterise protein phase separation
Knowles Lab

MChem in Chemistry — University of Oxford, UK
Lady Margaret Hall College — 2018 - 2022
Grade: First Class
Masters Supervisor: Prof. M. Krishnan

A-Levels — Aquinas College
Stockport — 2016 - 2018
Maths/Chemistry/Physics: A*/A*/A*

Publications

1. Qian, D; Ausserwöger, H; Arter, W. E; **Scrutton, R**; Welsh T. J; Kartanas, T; Ermann, N; Qamar, S; Fischer, C; Šneideris, T; St George-Hyslop, P; Pappu, R. V; Knowles, T; Linking modulation of bio-molecular phase behaviour with collective interactions *bioRxiv*

Employments

Undergraduate Researcher — University of Cambridge, UK
Department of Chemistry — Jun - Oct 2021
Supervisor: Prof. T. P. J. Knowles
Topic: Sequence based prediction of *in vivo* protein condensation

Undergraduate Researcher — University of Sheffield, UK
Department of Chemistry — Jun- Sep 2020
Supervisors: Prof. Julia Weinstein, Prof. Anthony Meijer.
Topic: Density functional theory modelling of excited electronic states in platinum complexes

Coding Skills

Languages: Python
Libraries: PyTorch, TensorFlow, scikit-learn

Awards, Grants and Honors

Lady Margaret Hall, Oxford Christopher Dobson Prize for Finals examination results 2021

Teaching

Masters Level Teaching University of Cambridge, UK
Natural Sciences - Soft Matter 2022-2024
Systems Biology - Project supervisor 2022-2023

Undergraduate Level Teaching University of Cambridge, UK
Natural Sciences - Thermodynamics 2022-2023
Natural Sciences - Chemical Kinetics 2022-2023
Natural Sciences - Laboratory Demonstrating 2022-2023

Other Online Tutoring
AS Level (UK, 16-17 years old) - Chemistry 2020-2021
GCSE Level (UK, 15-16 years old) - Chemistry, Maths 2018-2020