

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

St John's College

Supervisor: Prof. T. P. J. Knowles

Topic: Machine Learning and Experimental Physical Chemistry to characterise protein phase separation

[Knowles Lab](#)

University of Cambridge, UK

2022 - 2026

MChem in Chemistry

Lady Margaret Hall College

Grade: First Class

Masters Supervisor: Prof. M. Krishnan

University of Oxford, UK

2018 - 2022

A-Levels

Stockport

Maths/Chemistry/Physics: A*/A*/A*

Aquinas College

2016 - 2018

FIRST AUTHOR PUBLICATIONS

2024

(1) Ausserwöger, H; **Scrutton, R**; Sneideris, T; Fischer, C. M; Qian, D; de Csilléry, E; Saar, K. L; Bialek, A. Z; Oeller, M; Krainer, G; Franzmann, T. M; Wittmann, S; Iglesias-Artola, J. M; Invernizzi, G; Hyman, A. A; Alberti, S; Lorenzen, N; Knowles, T. P. J; [Biomolecular condensates sustain pH gradients at equilibrium driven by charge neutralisation](#) *bioRxiv*

EMPLOYMENTS

Consultant

[Transition Bio Ltd., UK](#)

Cambridge, UK

Jan 2024 - Present

Undergraduate Researcher

Department of Chemistry

Supervisor: Prof. T. P. J. Knowles

Topic: Sequence based prediction of *in vivo* protein condensation

University of Cambridge, UK

Jun - Oct 2021

Undergraduate Researcher

Department of Chemistry

Supervisors: Prof. Julia Weinstein, Prof. Anthony Meijer.

Topic: Density functional theory modelling of excited electronic states in platinum complexes

University of Sheffield, UK

Jun- Sep 2020

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: Chemistry at the small scale

2022-2024

Natural Sciences - Project supervisor

2023-2024

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

CO-AUTHOR PUBLICATIONS

2024

(1) Fischer, C. M; Ausserwöger, H; Sneideris, T; Qian, D; **Scrutton, R**; Qamar, S; St George-Hyslop, P; Knowles, T. P. J; [Temperature-induced changes in protein interactions control RNA recruitment to G3BP1 condensates](#) *bioRxiv*

2023

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