

## Kieran Didi, Overview of publications, conference presentations, software, and teaching

### Publications

- *High Resolution Biomolecular Condensate Phase Diagrams with a Combinatorial Microdroplet Platform*, [Nature Communications](#), 12/2022  
Developed screening system and bioinformatic analysis for protein analysis, especially LLPS behaviour of intrinsically disordered proteins and the effect on structure/function
- *Accessible genomics at scale: developing a cloud-native platform to detect foreign DNA insertions*, under review (first author), 12/2022
- *On How AI needs to Change to Advance the Science of Drug Discovery*, [arxiv](#), 12/2022
- *Generative Models in Bioinformatics*, invited book chapter in *Encyclopedia of Bioinformatics and Computational Biology*, under review, 01/2023

### Conference Presentations

- *Accessible AMR-detection tools for clinicians via cloud-based bioinformatics* (oral presentation), Clinical Informatics Symposium Melbourne (Australia), 12/2022
- *sINSIDER: a cloud-native modular platform for kmer-based genomic analysis* (oral presentation), ABACBS Conference Melbourne (Australia), 11/2022
- *Moving bioinformatics to the cloud* (keynote presentation), eSCAMPS Symposium Cambridge (UK), 09/2022
- *Detecting DNA integration via HPC bioinformatics pipeline* (poster), R&I Conference Sydney (Australia), 08/2022

### Open-Source Software Contributions

- Terraform module for automated setup of EMR Serverless application (published on [Terraform registry](#)) including [detailed tutorial](#), more than 400 downloads so far ([research background](#))
- [Web application](#) to detect foreign DNA integrations quickly, example usages include hospitals for detection of antimicrobial resistances and clinical trials checking for integration events in gene therapy. Based on high-performance serverless architecture, source code [publicly available](#)
- [Multimodal Healthcare project](#) to integrate data from different sources (clinical notes, genomics, MRI scans, ...) to predict cardiovascular disease risk, part [of FSDL course 2022](#)
- Currently involved in a team for a [Kaggle challenge](#) to predict protein stability based on sequence information
- Implement biological oracle for effect prediction of *in silico* generated biological sequences, part of the [DNA Diffusion project](#) at [OpenBioML research lab](#)

### Teaching

- [Algorithms II](#), supervising course on data structures and graph algorithms, Cambridge University, 01-03/2023
- *MLOps with PyTorch Lightning and W&B*, conceptualised and lecture workshop, ML Forum CSIRO Australia, 01/2023
- [Python for Scientists](#), conceptualised and lectured course, Heidelberg University, 11/2022
- *Python Best Practices*, co-host of this workshop, Scientific Software Centre Heidelberg 11/2022
- [Deep Learning with PyTorch](#), Lunch Time Python workshop, Scientific Software Centre Heidelberg, 10/2022
- [Python for Biochemists](#), conceptualised and lectured course, Heidelberg University, 03/2022