Personal Webpage | kieran.didi(at)gmail.com

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

Publications

- *Flexible Small-Molecule Design and Optimization via Equivariant Diffusion Models*, ILCR 2023 MLDD Workshop, 03/2023
- *Accessible genomics at scale: developing a cloud-native platform to detect foreign DNA insertions*, under review, 03/2023
- *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
- *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 600 downloads so far (research background)
- Web application to detect foreign DNA integrations quickly, example usages include hospitals for detection of antimicrobial resitances 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
- Part of a team for a Kaggle challenge to predict protein stability based on sequence information
- Implement biologicial 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