LIANGTI DAI

Centre of Computational Biology, MRC Weatherall Institute of Molecular Medicine, University of Oxford
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RESEARCH INTERESTS

Computational Genomics; Bioinformatics; Machine Learning

EDUCATION

University of Oxford, England, U.K. Sept.2018-
DPhil student, Interdisciplinary Bioscience Doctoral Training Partnership
Specialization: Computational and Statistical Genomics

Nankai University, Tianjin, China Aug.2014-Jun.2018
B.S., Biological Sciences

RESEARCH

Statistical modelling and machine learning for next-generation sequencing data Jul.2019-
DPhil research · Supervisor: Gerton Lunter
· Developed a model-based algorithm for high-resolution peak calling for ATAC-seq alignment data.
· Explored the application of topic modelling on single-cell ATAC-seq data for dimensionality reduction and regulatory genomic element identification.
· Integrated gene expression information with deep convolutional neural networks to predict tissue-specific chromatin accessibility from DNA sequences.

Pipeline construction for single-cell ATAC-seq data analysis and visualization. Mar.2020-
Collaboration
· Constructed an end-to-end pipeline for single-cell ATAC-seq data processing for high resolution analysis with the aim to detect rare regulatory elements and cell types.
· Created a flask application as an interface for navigating through the pipeline and assisting with data visualization.

Exploring transmission dynamics modelling of COVID-19 using ComoModels Mar.2021-
· Contributed to the development of an R package (ComoModels) of compartmental epidemiological models for understanding complex aspects of COVID-19 transmission. (Collaboration)
· Developed a user-friendly shiny web application accompanying ComoModels for model demonstration and parameter exploration.

OTHER ACADEMIC ACTIVITIES

Lecture Caption Editor 2021
· Mathematical Biology; Medical Statistics
Teaching Assistant Nov.-Dec.2019
· Modelling and Scientific Computing; Essential Mathematics

SKILLS

Python, Pytorch, R, Next-generation sequencing analysis tools

AWARDS

· Honors graduate, Nankai University 2018
· Gold medal, International Genetic Engineering Machine Competition (iGEM) 2016
· Poling Outstanding Academic Award, Nankai University 2015-2018