Mengyan Zhang

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EDUCATION

Ph.D. Candidate in Machine Learning
Computational Media Lab, The Australian National University, 2018.08- present
Machine Learning Research Group, Data61, CSIRO, 2018.08- present

Bachelor of Advanced Computing (with first class honours)
The Australian National University, 2014-2018
GPA 6.938/7.0

Bachelor of Computer Science and Technology
Shandong University (Weihai), 2014-2018
GPA 90.47/100

RESEARCH INTEREST

Online experimental design in machine learning, including multi-armed bandits and active learning. Two goals: (I) designing robust algorithms to reflect the preference of agents. (II) Designing the pipeline and recommendation strategies for synthetic biology experimental design.

RESEARCH & PROJECT

Quantile Bandits for Best Arms Identification
under review, preprint arxiv: 2010.11568
We consider a variant of the best arm identification task in stochastic multi-armed bandits. Motivated by risk-averse decision-making problems in fields like medicine, biology and finance, our goal is to identify a set of m arms with the highest τ-quantile values under a fixed budget. We propose Quantile Successive Accepts and Rejects algorithm (Q-SAR), and prove two-sided asymmetric concentration inequalities for order statistics and quantiles.

Optimized Experimental Design for Translation Initiation using Machine Learning
delayed due to BioFoundary Lab shutdown during COVID-19 pandemics
We show how machine learning can be used to analyse, predict the performance of the ribosome binding site (RBS) of E. coli – one of the main genetic elements controlling protein expression. We build a Gaussian Process regression model and an Upper Confidence Bound recommendation model to find the optimal choice with high protein expression with a limited budget.

Active Learning Library for Knowledge Graph
Python software
Acton is a modular Python library for active learning. We extend it to allow querying from Knowledge Graph structures.

Classification of Historical Death and Occupation coding
Honours thesis
We consider the classification tasks for real historical death and occupation data sets. The objectives are to develop text classification techniques and evaluate these techniques on large real-world data collections. The project mainly uses Python as the programming language.

AWARDS

2019 Data61 Top-up Postgraduate Research Scholarship
2018 PhD Scholarship of ANU
2018 ANU HDR Fee Remission Merit Scholarship
2017 Paul Thistlewatte Memorial Honours Year Scholarship of ANU
2015-2016 National Scholarship (China)
2016 Lan Qiao Cup Programming Competition Shandong province 1st prize

PRESENTATIONS

Quantile Bandits for Best Arms Identification
Machine Learning Summer School 2020 (acceptance rate: 13.84%)
Max Planck Institute for Intelligent Systems, Tübingen, Germany

Optimized Experimental Design for Translation Initiation using Machine Learning
Collaborative Conference on Computational and Data Intensive Science (C3DIS) 2020
Canberra, Australia

TEACHING

Tutor for COMP8600 Statistical Machine Learning (S1 2019, S1 2020)
Tutor for COMP6670 Introduction to Machine Learning (S2 2020)

TECHNICAL SKILLS

Programming: Python, Java, C#, C++, C
Language: Chinese, English
Others: Git, LaTex, Photoshop

REFEREE

Dr Cheng Soon Ong
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