Liu Qi

CONTACT INFORMATION

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EDUCATION

Tsinghua University — Beijing, China
M.Sc. in Control Engineering — September 2018 - June 2021

- GPA: 3.8/4.0, Ranking: TOP 5%
- Advisor: Prof. Liu Ming
- Relevant Courses: Big Data Systems, Big Data Analytics, Pattern Recognition, Data Mining, Systems Engineering and Optimization

China University of Mining and Technology — Xuzhou, China
B.Sc. in Electronic Information Science and Technology% — September 2014 - June 2018

- GPA: 3.5/4.0, Ranking: TOP 5%
- Advisor: Prof. Liu Ming
- Related courses: Advanced Programming Language Design, Computer Architecture, Computer Networks, Data Structures, Operating Systems, Embedding System

PUBLICATIONS

Zhou, X., Cheng, Z., Dong, M., **Liu, Q.**, Yang, W., Liu, M., Tian, J., & Cheng, W. (2022). Tumor fractions deciphered from circulating cell-free DNA methylation for cancer early diagnosis. Nature Communications, 13(1), 7694.

Guo, J., **Liu, Q.**, Guo, H., Lu, X. (2022). Ligandformer: A Graph Neural Network for Predicting Compound Property with Robust Interpretation. arXiv

RESEARCH EXPERIENCE

Tsinghua University — Beijing, China
Master's Researcher — June 2020 - June 2021

- I was responsible for the design and research of the "Cancer Early Detection and AI-Assisted Diagnosis Based on Tumor Liquid Biopsy Markers in Blood" project.
- I processed and constructed a DNA methylation dataset, and developed a new method for identifying tumor-specific DNA methylation sites and predicting the source of tumor tissue.

Longmaster Information & Tech Co.,Ltd. & Guiyang Sixth People's Hospital — Guiyang, China
R&D Intern — September 2019 - June 2020
The design and development of the "Medical Image Intelligent Annotation" project:

- I built multiple organ semantic segmentation models based on deep learning.
- I transformed the manual annotation software and developed an intelligent segmentation system and workflow for chest CT and MRI images. The project won the Excellent Enterprise Practice Award from the Department of Automation at Tsinghua University.

China University of Mining and Technology — Xuzhou, China
Undergraduate Researcher — November 2017 - June 2018
I was in charge of the design and development of "Image Natural Language Description Based on LSTM".

- I created a Chinese image natural language description dataset and built multiple CNN+LSTM image description models.
- I compared the natural language description performance of the models on various datasets, and developed an application software. project was named the Outstanding Undergraduate Graduation Project in 2018.

Work Experience

Global Health Drug Discovery Institute (GHDDI) Beijing, China

AI Research, Associate Scientist June 2021 - present

- Led the design and development of an AI-generated project on small molecule drugs targeting the 3CL protein of COVID-19, proposing a novel approach to small molecule and protein processing.
- Participated in the design and development of ADMET property prediction projects for antiviral and anti-malaria small molecule drugs, helping to establish a small molecule property prediction platform.
- Participated in the RD of a project on the cryo-EM structure analysis of human abnormal fibrinogen with Peking Union Medical College, proposing a new analysis process and method.

Leadership Experience

IOT Big Data Institute of CUMT Xuzhou, China

Deputy head December 2016 - June 2017

Assisted the professor in designing laboratory management regulations, organized and managed a student team of dozens of people, and organized a series of activities including more than a dozen scientific and technological innovation competitions, lectures, and other events.

Projects

Target Aware Molecular Generation [Code]
Target-specific Molecular Generation integrating protein-ligand interactions based on cVAE and Graph Neural Network

Modified ChemTreeMap [Web]
A New TreeMap Tool for Chemical Libraries' Diversity Analysis

Modified CryoDRGN [Web]
From Projections to 3D Density Map of CyroEM.

AI-Assisted Annotation [Web]
AI-Assisted Annotation for Medical Images.

A News Clustering System Based on K-Means [Web]
A News Auto Crawling and Clustering System.

Honors and Awards

Tsinghua Comprehensive Excellence Scholarship (Top 10%) 2019

CUMT Excellent Undergraduate Thesis (Top 10%) 2018

CUMT First Prize Scholarship and Outstanding Student Award (Top 10%) 2017

First Prize in The 13th National College Students' Embedded System Design Competition 2017

Second Prize of East China Division in the 3rd National College Students' "Internet+" Innovation and Entrepreneurship Competition 2017

Skills

Programming: Python, Shell, C/C++, Java

Data analysis: SQL, Excel, R, MATLAB

Applications: Git/GitHub, LaTeX, WebDev

Language: Mandarin (native), English (fluent), German (beginner)