BANGJI YANG

Department of Automation and Xinya College
Tsinghua University, P.R. China
GitHub: Islet-Yang | e: ybj21@mails.tsinghua.edu.cn/isletyang@gmail.com

EDUCATION INFORMATION

Tsinghua University, Undergraduate Student, Major in Automation Beijing, China
GPA: 3.83/4.00 September 2021 – Present (Expected Graduation: June 2025)

WORK EXPERIENCE

AI Drug Design, AI Lab Research, ByteDance Shanghai,
China **Supervisor: Quanquan Gu, ByteDance & UCLA** June 2024 – Present

- Proposed a framework for protein molecular dynamics trajectory generation based on Diffusion.
- Designed three novel metrics for protein molecular dynamics trajectory evaluation.
- Improved the accuracy and realism of protein molecular dynamics trajectory through physical prior knowledge and particular loss functions.
- Researched methods for long molecular dynamics protein trajectory generation.

RESEARCH EXPERIENCE

Tracking and classification of microglia under wide field microscope Beijing, China
Supervisor: Qionghai Dai, Tsinghua University February 2024 – June 2024

- Trained U-Net for tracking and segmentation for video of microglia in motion recorded by wide field microscope and contrastive learning network (SimSiam) for classification of cell subtypes.
- Researched new algorithms of data enhancement for positive samples needed in Simsiam based on GAN.
- Designed transfer learning method between two neural networks.

Modeling DNA sequences with natural language models Beijing, China
Supervisor: Xiaowo Wang, Tsinghua University September 2023 – February 2024

- Explored efficient methods for DNA sequence tokenization with reference to the BPE algorithm.
- Built Neural Networks with multi-layer CNN, LSTM and CRF to perform various downstream tasks related to DNA sequences.
- Fine-tuned the DNABERT family of models and found motifs in DNA sequences as the attention scores recorded.

Computing-in-memory chip with memristor Beijing, China
Supervisor: Bin Gao, Tsinghua University April 2023- September 2023

- Applied convolutional neural network on chip based on memristor implementation.
- Tested the memristor chip and counted the number of bad tracks using the given SDK.

EXTRACURRICULAR ACTIVITIES

Member in the department of external exchange, student union of Xinya College March 2022 – June 2023
Member in the department of competition, association of science and technology of the department of automation
March 2022 – June 2023
Volunteer teaching in Changzhi district, student association of educational poverty alleviation
August 2023 – September 2023

TECHNICAL SKILLS

Programming Languages: C/C++, C#, Python, Verilog
Tools and Frameworks: PyTorch, Git, LATEX, Markdown