CHUYUE LIAO

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OVERVIEW

As a highly motivated and collaborative student majoring in computer science and technology, I have a strong interest in the AI for Science, Deep Learning and Computer Vision, with a keen desire to leverage computing to enhance human life. During undergraduate studies, I have gained valuable experience in deep learning, mathematical modeling, and programming. This entails all outstanding course design projects, participation in research projects, and receiving national-level modeling awards in competitions.

EDUCATION BACKGROUND

Nanjing Normal University(NNU), China *Sep 2021 - June 2025*
Bachelor of Engineering | Computer Science and Technology | School of Computer and Electronic Information

- Overall GPA: 89.45/100, Major GPA: 90.98/100
- **Main Courses:** Discrete Mathematics(99/100), Computer Organization and Architecture(96/100), Java Language Programming(97/100), C++ Program Designing(97/100), Advanced Mathematics A1(96/100)
- **Course projects:** Course Design in Data Structure(Full marks), Course Design in Digital Logic(Full marks), Course Design in C++ Language Programming(Full marks), Java Application Project Design(Full marks)

RESEARCH INTERESTS

AI for Science, Deep Learning, Computer Aided Drug Design, Computer Vision

RESEARCH AND PROJECTS

KOMABA (Knowledge-Oriented Machine learning and Artificial intelligence for Big data and Analytics lab), Nanjing Normal University, **Advisor:** Prof. Yanhui Gu, *Core Participant*

- **Study on the Structure and Properties of Protein-Ligand Complexes** *June 2023 - Present*
  Swiftly screening the best ligands and docking poses often leads to long processing times or loss of molecular information. Thus, inspired by the search for the top-k semantically similar sentences in the field of Natural Language Processing (NLP), I contributed to the development of the MapLE method, a general framework for Matching molecular analogues promptly with Low computational resources by multi-metrics Evaluation. This approach integrates various similarity metrics and introduces a progressive prompt evaluation technique to expedite the screening process. Experimental validation on a public biomolecular dataset confirms the effectiveness and efficiency of this strategy.

JMRH Key Laboratory of 3D Space Modeling and Simulation, Institute for Artificial Intelligence, Nanjing Normal University, **Advisor:** Prof. Xiaojun Qian, *Core Participant*

- **River Channel Embankment Seepage Detection** *Oct 2022 - May 2023*

  In the leakage detection part based on infrared thermal images, due to uneven heating of the dam surface and the susceptibility of infrared thermal imaging technology to environmental factors during data acquisition, the overall imaging quality is low, severely affecting the accuracy of dam seepage point identification. To address these issues, I participated in designing a new method for dam seepage point detection based on infrared enhancement. By analyzing the characteristics of infrared image data and utilizing morphological reconstruction and automatic thresholding methods, it extracted the regions of

minimum temperature in the infrared thermal images to construct a high-precision leakage identification model for dam infrared images.This model has now been applied to a collaborative project with the Jiangsu Provincial Department of Water Resources.

Publications

MapLE: Matching Molecular Analogues Promptly with Low Computational Resources by Muti-Metrics Evaluation

- *Xiaojian Chen, **Chuyue Liao**, Yanhui Gu, Yafei Li, Jinlan Wang, Yi Chen, Masaru Kitsuregawa*
- The 38th Annual AAAI Conference on Artificial Intelligence, 2024

Prediction method of docking posture between protein and ligand based on graphic neural network

- *Yanhui Gu, Xiaojian Chen, Xianfeng Zhang, Yuansu Hao, Yuxin Wen, **Chuyue Liao***
- Patent, CN116343910A, 2023

Honors and Awards

International Mathematical Contest in Modeling *Feb 2024*
*Outstanding Winner (**Top 1** among all teams)*

AAAI-24 Student Scholarship *Feb 2024*
$1000

Advanced individual in scientific research and innovation of Nanjing Normal University *Oct 2023*
(***Top 1** among all candidates*)

"The Challenge Cup" National College Student Curricular Academic Science and Technology Works Competition *Aug 2023*
Jiangsu Division, Second Prize(Leader and Core Participant)

C4-Network Technology Challenge *Aug 2023*
East China Division, Second Prize

Nanjing Normal University Scholarship for Outstanding Students *Nov 2022*
First Prize Scholarship

Skills

Programming: Python, MATLAB, Java, C++, Bash, Markdown, HTML
Deep Learning Toolkits: PyTorch, PaddlePaddle
Other frequently-used tools: Vim, Git, LaTeX

Experience

AAAI Student Membership *Dec 2023 – Present*
The Association for the Advancement of Artificial Intelligence

"*Ming Li*" Teaching Assistant of C++ Programming Language Course *Mar 2023 – Jul 2023*
Nanjing Normal University

"*Ming Li*" Teaching Assistant of C Programming Language Course *Sep 2022 – Feb 2023*
Nanjing Normal University
My responsibilities include:

- Answered questions raised by students
- Organizing extracurricular C & C++ programming competitions

Leadership

Class Monitor *Sep 2022 – Sep 2023*
Nanjing Normal University

- Lead the Class to receive the honor of "Top Ten Class" in School of Computer and Electronic Information

Founder and Leader of *"TIDE"* Team *Dec 2021 – Precent*
Student Research and Computer Science Competition Team

- Shortlisted for the "Talented Program" in School of Computer and Electronic Information*(Top 2)*
- Consistently achieved good results in international modeling competitions