

# Yaoxuan Ju

Phone: (+86) 18061335368 | Email: yaoxuan.ju@student.manchester.ac.uk | GitHub: <https://github.com/EllaJu0419>

Homepage: <https://ellaju0419.github.io/> | LinkedIn: [linkedin.com/in/yaoxuan-ju-85a743231](https://www.linkedin.com/in/yaoxuan-ju-85a743231)

## EDUCATION

### University of Manchester

Manchester, UK

Bachelor of Science in Computer Science and Mathematics

Sep. 2021 – Present

- **GPA:** 3.82/4.0; 77.771 / 100 (top 10%)
- **Relevant Courses:** Algorithms & Complexity, Artificial Intelligence, Calculus, Combinatorics & Graph Theory, Computer Architecture, Computer Programming, Data Science, Geometry, Linear Algebra, Mathematical Biology, Multivariable Calculus, Neural Language Processing, Numerical Analysis, Operating Systems, Physics, Probability, Statistics, Topology
- **Skills:** C, C++, CSS, HTML, Java, JavaScript, Keras, LaTeX, Linux, MATLAB, Python, PyTorch, SQL, TensorFlow
- **Awards:** B.Sc. Honours (Hons) Graduate of University of Manchester

## RESEARCH EXPERIENCE

### Machine Learning for Protein Sequence Antimicrobial Prediction

Student Summer Research Internship | Advisor: Dr. [Mingyue Zheng](#), Chinese Academy of Sciences

Aug. 2023 – Present

- Utilized pre-trained language models (PLM) and transformed antimicrobial prediction into a protein labeling generation problem and proposed a pioneering image recognition approach for protein classification and labeling
- Collected 10k+ protein data from UniProt database with Python and conducted comprehensive data cleaning and transformation
- Developed a BLIP-2-based model with ESM2 as the encoder and implemented prompt engineering techniques to improve inference performance, resulting in 95%+ accuracy

### Utilizing Machine Learning for Caloric Estimation in Recipe Analysis

Student Summer Research Internship | Advisor: Dr. [Riza T. Batista-Navarro](#), University of Manchester

Jun. 2022 – Sep. 2022

- Contributed to the development of an AI-based caloric calculator web application used by Friends of the Earth (FoE) Manchester
- Executed data pre-processing procedures, including data collection, data cleaning, data visualization, etc. using Python
- Enhanced FoE website with front-end and back-end software development and gathered user feedback by building an embedded tool; the app now serves thousands of users on a monthly basis

### Development of AI-powered Autonomous Food Delivery Vehicle

iFlytek Co., Ltd. Student Research Competition

May. 2021 – Sep. 2021

- Developed a self-driving vehicle model based on Ubuntu and robot operating system programming
- Built speech interaction module and visual navigation module with machine learning algorithms, including LSTM and YOLO
- Accomplished task of meal delivery and menu announcement by experiments on hyperparameter fine-tuning

### Computer-Aided Repurposing of Pentostatin: A Novel Target Discovery Research

Institute of Materia Medica, Chinese Academy of Sciences

Jun. 2019 – Sep. 2019

- Devised an innovative medicine repurposing approach to identify potential active compounds for new targets on 1,813 approved medicines with Schrodinger software
- Conducted biological data screening and 3D protein reconstruction for Pentostatin using deep learning algorithms
- Performed molecular docking of small molecule inhibitors to the DOT1L protein target (PDB ID: 4HRA) on Pentostatin by employing SP model with optimized parameters

## PROJECT EXPERIENCE

### Human-Robot Interaction (HRI) with Multimodality | Final Project | Advisor: Prof. [Angelo Cangelosi](#), University of Manchester

- Research on a multimodal human-robot interaction framework with visual-based and verbal-based explanations
- Applied deep learning models to recognize human emotions and generate multimodal explanations to help understand predictions
- Evaluated the framework on the KDEP dataset and in HRI experiments in a comprehensive and quantitative manner

### Real-world Applications of Machine Learning | Machine Learning Course Projects

- Implemented k-nearest neighbors algorithm (k-NN) for news articles classification and experimented on hyperparameter selection
- Incorporated L2-regularized linear regression algorithm with bias terms and utilized cross-validation to optimize regularization hyperparameters for face recognition, achieving a test accuracy of 0.935