

Yi Lu

ylu174@alumni.jh.edu | (+1)4437692270 | Baltimore, MD 21218 | <https://louis-26.github.io>

Education

Johns Hopkins University

08/2024 - 05/2025

MSE in Data Science Engineering

- GPA: 3.90/4.00(**top 5%**)
- Advisor: Prof. [Soledad Villar](#)
- Selected Core Courses:
 - Optimization, Probabilistic Machine Learning, Statistics Analysis,
 - Computer Vision, Artificial Intelligence, Image Processing, Natural Language Processing

Chinese University of Hong Kong, Shen Zhen

09/2021 - 07/2024

BS in Data Science and Big Data Technology

- Minor & Stream: Statistics, Methodology and Theory
- Cumulative GPA: 3.77/4.00(**top 5%**), Major GPA:3.92/4.00(**top 5%**)
- Advisor: Prof. [Andre Mizarek](#)
- Selected Core courses:
 - Calculus, Linear Algebra, Optimization, Differential Equations,
 - Machine Learning, Stochastic Simulation, Visualization Analysis
 - Probability, Mathematical Statistics, Linear Model, Statistical Inference, Multivariate Statistics
 - Python Programming, Data Structures, Database System

Research Interest

I'm broadly interested in **Computer Vision**, and I'm specifically interested in its application in real-world. Currently, I would rather explore the intersection of Computer Vision with **Multimodal AI**, **Visual generation** and **Robotics**.

Professional Skills

- Programming Languages: Python, MATLAB, R, Java, SQL, Html, Java Script
- Deep learning platforms: TensorFlow, Pytorch, YOLOv
- Languages: Chinese (native speaker), English (professional)

Research Experience

Laboratory for Computational Sensing & Robotics, Johns Hopkins University

Baltimore, Maryland, US

Research Assistant

08/2025 - present

- Explored Language Models Trajectory Generator paper, examining audio-text-motion plan conversion for robot arm
- Implemented GPT-OSS model into the original frame, replacing the original GPT-4o model as an alternative

Department of Applied Mathematics and Statistics, Johns Hopkins University

Baltimore, Maryland, US

Graduate Researcher

01/2025 - 08/2025

- Analyzed paper of Scalars Method and Double Pendulum Experiments, exploring the algorithm
- Implemented bilipschitz embedding in pytorch and integrated it into the original
- Compared the prediction results with and without bilipschitz
- Tuned parameters for the multi-layer perceptron network, summarizing a table for prediction results

- Designed further noise addition for the original dataset, testing the bilipschitz embedder effect for model robustness

Center of Excellence, Johns Hopkins University

Baltimore, Maryland, US

Research Collaborator

06/2025 - 08/2025

- Preprocessed video data and derived audio, caption, video frames information
- Collaborated with group members for initial answer generation for specific questions
- Evaluated the initial generations by BERT score, STS (Semantic Textual Similarity) and METEOR (Metric for Evaluation of Translation with Explicit Ordering)

School of Data Science, Chinese University of Hong Kong(Shen Zhen)

Shen Zhen, Guang Dong, China

Undergraduate Researcher

01/2024 - 05/2024

- Investigated paper related to LoRA algorithms, decreasing 90% trainable parameters while preserving training accuracy of LLM
- Referred to GPT-2 pretrained model from Open AI, adopting LoRA algorithm for fine tuning and reinforcing the model's dialogue ability under certain context
- Configured and deployed Conda, CUDA, CUDNN, solving technical issues and ending up with GPU version of Pytorch
- Executed primary model codes and recorded function losses, achieving loss values visualization; Adjusted model parameters and derived model with 15% faster convergence rate
- Implemented LoRA algorithms for fine tuning based on dataset on Hugging Face, increased average dialogue score by 10% and decreased convergent loss function values by 30%

Project Experience

Autonomous Vehicle Multi-Task Model, Johns Hopkins University

Baltimore, Maryland, US

Project Collaborator

01/2025 - 05/2025

- Combined semantic segmentation, depth estimation and object detection functions into one model
- Tuned Yolo model parameters, comparing model performance by detection accuracy and IoU
- Visualized the detection labels, creating tables and outputting the final detection results

Image Denoising Filter Design, Chinese University of Hong Kong(Shen Zhen)

Shen Zhen, Guang Dong, China

Project Leader

07/2023 - 08/2023

- Generated gaussian, salt-pepper and Moire pattern noise and simulated theoretically noisy space images in Python
- Implemented conventional filters such as mean, median, gaussian filters and innovative filters such as Laplacian, Wiener, Notch filters in Python by cv2 package, applying into noisy images
- Evaluated denoising performance with measure of PSNR (Peak signal-to-noise ratio) and SSIM (Structural Similarity Index Measure), picking filter with best denoising effect; Improved denoising performance by 20% than best conventional filters
- Compared denoising effects of different filters, completing 8-page project report; Attained the best project in class

Publications

Preprint

1. Breaking Forgetting, Training-Free Few-Shot Class-Incremental Learning via Conditional Diffusion

Haidong K., Ketong Q., **Yi L.**

CVPR 2026 submission

2. Generating and Reranking Diverse Answers in Video Question Answering: TREC2025 Video Question Answering Shared Task Description

Dengjia Z.*, Charles W.*, Katherine G., Yi L., Kenton M., Alexander M., Reno K., Benjamin V. D.,
CVPR 2026 submission

Industry Experience

Angleyes Technology Inc.

Shen Zhen, Guang Dong, China

Algorithm Engineer Intern

01/2024 - 05/2024

- Mastered deep learning platform Pytorch basic application, constructing fundamental neural network for prediction
- Refined baseline algorithms from Yolov, configuring code execution environment and attaining executable models; Achieved 70% image recognition accuracy
- Preprocessed images and utilized Roboflow platform for data annotation, obtaining datasets applicable for Yolov training
- Experimented with traffic detection dataset for image recognition, adjusting model parameters and comparing training effects; Accomplished a model with 90% training accuracy
- Collaborated on industrial panels data detection, adjusting batch size and epochs for better training effect; Achieved a model with 95% detection accuracy

Hundun Energy Technology Inc.

Wu Xi, Jiang Su, China

Algorithm Intern

07/2022 - 08/2022

- Designed basic webpages with certain portals by Flask framework in python
- Conducted data cleaning by pandas package, eliminating outliers and missing values accounting for 10% in original data
- Selected among fundamental machine learning algorithm by real tasks, importing scikit-learn package and implementing basic algorithms to fulfill algorithm functions
- Evaluated baseline models on air-conditioner data, adjusting model parameters and decreasing loss function value by 15%

Teaching Experience

Department of Applied Mathematics and Statistics, Johns Hopkins University

Baltimore, Maryland, US

Teaching Assistant- EN.553.636 Introduction to Data Science

01/2024 - 05/2024

- Delivered tutorial sections for course content review
- Held office hour time to answer students' course-related questions

HighMark Organization

Remote

Professional Part-time Tutor

07/2024-present

- Coached 5 students for more than 50 hours of Maths and Statistics courses to prepare for exams
- Communicated with students for study difficulty, designing personalized teaching plans
- Analyzed course notes in detail and delivered lectures, assigning specific tasks for each student
- Explained key points effectively and helped improve final exam score by 20 points on average

Mentoring Experience

Chinese University of Hong Kong(Shen Zhen)

Shen Zhen, Guang Dong, China

Undergraduate Student Helper

09/2023-07/2024

- Advised over 20 junior students with course work on Data Science, Maths and Statistics
- Assisted with lecture notes clarification and standard idea for common course questions
- Informed experience or review tips for lectures, helping part of students make progress in courses

Chinese University of Hong Kong(Shen Zhen)

Remote

Senior High School Student Mentor

12/2021-02/2022

- Communicated with senior high school students and shared university life
- Answered inquiry regarding future planning and work-life balance, relieving their study pressure

Awards and Honors

| | |
|---|-----------|
| Bowen Scholarship | 2021-2023 |
| Academic Performance Scholarship | 2021-2022 |
| Dean’s List | 2021-2024 |
| University Students’ Mathematics Competition Second Class Prize | 2021-2022 |

Extracurricular Experience

Diligentia College, Chinese University of Hong Kong(Shen Zhen)

Shen Zhen, Guang Dong, China

Social Investigation Team Leader

04/2023-10/2023

- Administered team action and determined investigation topic, assigning tasks to each member
- Schemed schedule and timeline, exploring benefits and challenges of AI to medical enterprises
- Organized a visit at Simens Inc., interviewing the technical expert for up-to-date AI applications
- Scheduled for a contact with two professors in Shen Zhen Big Data Research Institute, consulting detailed research development with teammates and taking notes to summarize
- Concluded all information collected, collaborating to accomplish one report about findings