Sun Xueli

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Education

The University of Hong Kong, BEng(CompSc) Sept 2023 - May 2027

- Major: Computer Science | Minor: Mathematics
- major GPA: 3.92 | cGPA: 3.76
- **Major Course:** Python, C/C++, Introduction to Data Structure and Algorithm, Object-oriented Programming and Java
- **Math Course:** Calculus and Ordinary Differential Equations, Linear Algebra, Probability and Statistics, Multivariable Calculus, Mathematical Analysis, Discrete Mathematics
- **Exchange Course:** Simulation Methods for Optimization and Learning (100/100, Peking University, 2024) Introduction to Big Data Analysis (96/100, Yonsei University, 2024)
- **Current Course:** Machine Learning, Computer Vision, Algorithm Design and Analysis, Computer Organization, Deep Learning for Computer Vision (Github code)

Shenzhen Middle School, Science Sept 2020 - June 2023

- Obtain Tencent First-class scholarship
- Achieve top 0.3% in Gaokao, Guangdong Province, 2023

Projects

High-accuracy Traditional ML on CIFAR-10 with Integrated Feature Extraction Methods, Mar-Apr 2025
The University of Hong Kong

- Challenge Setting: Given CIFAR-10 dataset, the goal is to reach 70% classification accuracy on the private testing set, *without using deep learning architecture such as RNN, CNN, transformer, etc.*
- Design a model pipeline: data augmentation (horizontal flipping, random rotation), feature extraction (Mean RGB, Color Histogram, HOG, EOH, HUM, SIFT), dimensionality reduction (PCA), model selection (SVM with RBF kernel), fine-tuning
- Achieve accuracy of 71.837% on private test set, improved by about 15% than vanilla implementation
- Packages used: Scikit-learn, OpenCV, NumPy
- Github: Report & Jupyter notebook

Object Classification with Robot Arm, The University of Hong Kong Mar-Apr 2025

- Implement fully automated algorithm for the robot arm to grip and classify target objects
- Use AprilTag to calibrate the industrial camera by transformation flow
- Train a YOLO model to perform real-time classification of target objects
- Equipment used: 4 degrees-of-freedom robot arm (Dobot Magician), Intel D435 RGB-Depth camera
- Github: code

Stochastic Simulation Project, Peking University July 2024

- Build Martingale Difference Model, apply the gradient descent algorithm and the SPSA algorithm to maximize a stochastic math expression, also known as Sharpe Ratio
- Use NumPy vectorization feature to optimize code implementation
- Cooperate with peer student, complete within three days, write a complete report and win the highest score
- Tools used: Jupiter Notebook, Numpy, Matplotlib
- Github: Report & Jupyter notebook

Experience

Research Assistant, Infobodied Lab, The University of Hong Kong Dec 2024 - Jan 2025

- Read and replicate research papers related to human body modeling and LLM
- Utilize SMPL human body model, write Python code to enhance data processing for collected datasets
- Write prompts for datasets collection, integrate LLM in experiment code

Student Teaching Assistant, The University of Hong Kong Sept - Dec 2024

- Conduct tutorials and provide guides on Python code writing
- Practice academic communication skills

Student Programmer, SLRLab, The University of Hong Kong July - Aug 2024

- Work aligned with the backend group to implement a integrated platform for autism patients
- Use Springboot framework to build a portal system and an appointment system with clear interfaces, write REST API documentation
- Communicate with groupmates and frontend colleagues
- Demo code for user portal function: https://github.com/shirley430316/user-portal-backend

Other Skills and Activities

Languages: Mandarin (Native), English (Working proficiency, IELTS 7.5), Cantonese (Working proficiency)

Campus activities: General Secretary for HKU table tennis team, Chinese National Level-2 Athlete for table tennis