

Yibin Wang

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EDUCATION

New York University, New York City, United States

2019 — 2024

BA/MS Program

B.A. in Computer Science & Mathematics

Cumulative GPA: 3.75/4.00

M.S. in Computer Science

Cumulative GPA: 3.83/4.00

PUBLICATIONS

- Behavior Generation with Latent Actions (arxiv) **Spotlight (Top 3.5%)**
Seungjae Lee, **Yibin Wang**, Haritheja Etukuru, H. Jin Kim, Nur Muhammad Mahi Shafiullah, Lerrel Pinto **ICML'24**
International Conference on Machine Learning, 2024
- From Play to Policy: Conditional Behavior Generation from Uncurated Robot Data (arxiv) **Notable Top 5% (Oral)**
ZiChen Jeff Cui, **Yibin Wang**, Nur Muhammad Mahi Shafiullah, Lerrel Pinto **ICLR'23**
International Conference on Learning Representations, 2023

ACADEMIC EXPERIENCE

NYU CILVR, Generalizable Robotics and AI Lab(GRAIL)

New York City, United States

Research Assistant

May. 2022 — Present

- Participated in the project of developing Conditional Behavior Transformer(C-BeT), a method that models unlabeled demonstration data with multiple modes to perform diverse multi-modal tasks by robots with goal conditioning, supervised by Prof. Lerrel Pinto.
- Set up real-world toy-kitchen environment for running robot experiments of C-BeT and related baselines, such as Goal Conditioned BC (GCBC), Weighted Goal Conditioned Supervised Learning (WGCSL) etc.
- Collected real world robot data equivalent to 4.5 hours with VR controller and Real Sense cameras and processed data with numpy, PyTorch etc.
- Fine-tuned parameters of C-BeT and enabled the robot to do long horizon, multi-modal tasks and generalize to different modes to complete these tasks in the kitchen environment.
- Participated in the project of developing Vector-Quantized Behavior Transformer (VQ-BeT), a versatile model for behavior generation that handles multimodal action prediction, conditional generation, and partial observations.
- VQ-BeT augments BeT by tokenizing continuous actions with a hierarchical vector quantization module. Across seven environments including simulated manipulation, autonomous driving, and robotics, VQ-BeT improves on state-of-the-art models such as BeT and Diffusion Policies.
- Collected robot data and built dataset with the stick including 5 simple tasks, 3 two-task sequences, 4 long horizon tasks(three-task sequence).
- Fine-tuned parameters of VQ-BeT and performed experiment for the robot to do simple task, long horizon task, and long horizon multi-modal tasks in diverse real kitchen environments.

The Institue of Microelectronics of the Chinese Academy of Sciences

Beijing, China

Undergraduate Research Assistant

Jul. 2021 — Aug. 2021

- Have a through literature review and was acquainted with simulation of EDA(Exploratory Data Analysis) .
- Participate in the stimulation experiment of TSV (Through Silicon Via) electroplating with COMSOL.

PROJECTS

RRCloud-Net: Recurrent Residual Convolutional Neural Network for Image Segmentation

New York, NY

Group Leader

Sep. 2023 — Dec. 2023

- Proposed RRCloud-Net, a recurrent residual convolutional neural network based on U-Net, a modification to R2U-Net trained on 95-Cloud dataset for satellite image segmentation.
- The new design of encoder blocks of RRCloud-Net consists of a residual layer, Recurrent Residual convolutional units(RRCU), and skip connections, which lead to the efficient cloud feature learning abilty and better performance over previous models.

- Implemented Contrast Limited Adaptive Histogram Equalization(CLAHE) transformation for satellite images and verified its benefits and potential for image segmentation tasks.
- Trained a series of U-Net-based models, such as Residual U-Net, Attention U-Net, R2-U-Net as baselines on satellite image segmentation and compared the performance with the proposed model with metrics like Jaccard Index, AUC, F1 Score etc.

EduBot: An Intelligent Assistant for Study in Computer Science

New York, NY

Developer

Sep. 2023 — Dec. 2023

- Developed an intelligent agent in the form of website application to provide real-time responses and detailed explanations for knowledge and concepts, coupled with recursive coding capability to address complex problems in Computer Science.
- Constructed a new dataset which includes over 4000 different conceptual and coding questions based on available datasets on Kaggle and trained a LSTM(Long Short Term Memory) model to proficiently classify input questions in two categories (conceptual questions, coding questions) to trigger different workflows with accuracy over 98%.
- Integrated the ChatGPT API for dynamic content generation, designed prompts for content generation, and employed the techniques of prompt engineering such as prompt chaining to conceptual and coding questions to regulate and improve generated contents.
- Provided code editor, coding environment with widely-supported packages to enable users to complete a comprehensive coding project in python with the guidance of EduBot.

Performance Prediction on Multi-Thread Application

New York, NY

Group Leader

Feb. 2023 — May. 2023

- Worked on a project for predicting performance of multi-thread applications by proposing combined with both neural network and regression model based on Amdahl's Law.
- Created a dataset involving different multi-thread applications from multi-thread application benchmark suites, such as Parsec 3.0 and Splash-2x, which including comprehensive applications on different areas.
- Extracted and analyzed data of programs runs such as cpu-cycles, cache-misses, L1-icache-load-misses etc to predict the actual speedup of the program with different number of cores.
- Evaluated the performance of the proposed model and related baselines by MAE and RMSE and overperformed all the baselines, such as multiple regression, random forest regression, vanilla Neural Network etc.

Robotics Car Control

New York, NY

Group Member

Mar. 2022 — May. 2022

- Participated in the project to build a robot car and enabled it to detect flags with different colors and drive along certain track directed by colored flags.
- Assembled a robot car equipped with Lidar, rgb camera, motors, Nano motherboard etc. and took in charge of the hardware maintenance during experiments.
- Helped to setup ROS(Robot Operating System) and wrote code for robot car to search for flags when it loses flags in the environment.
- Collect color parameters(in RGB and HSV) of flags and helped adjusted related parameters on the robot car to improve the overall performance.

AWARDS

Bachelor's-Master's Scholarship, New York University

Sep. 2023 — Aug. 2024

Graduated Honors: Cum Laude, New York University

May 2023

Dean's List of Academic Year, New York University

2019-2020, 2020-2021, 2021-2022

SKILLS

- **Programming:** Python, Java, JavaScript, C/C++, CSS, HTML.
- **Machine Learning:** PyTorch, Tensorflow, SciKitLearn, Pandas, Numpy
- **Software Development:** Node, React, MongoDB, PostgreSQL, Linux