

Dingrong Wang

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Education

Rochester Institute of Technology

PhD. Student in Computing Information and Science

Dalian University of Technology

Bachelor in Computer Science (Software Engineering)

2020 Sep. – Present

Rochester, NY

2016 Sep. – 2020 Jul.

Dalian, China

Research Experience

Graduate Research Assistant

09/2020-Present

Several topics, please refer to publication list for details

Rochester, NY

- Online/offline/off-policy reinforcement learning application to sketch retrieval, recommender system, dense objection detection, adversarial network architectural search/compression/pruning and time series analysis (classification/regression/forecasting).
- Imitation learning, inverse reinforcement learning, distributional RL, multi-agent RL, meta RL, DRL frameworks fine-tuned by few human feedback (RLHF).
- VLM/LLM/foundational multi-modal model related research, regarding domain generalization, test time prompt tuning, safety alignment controlled by RL agents.

Group member

12/2018-01/2019

Vehicle obstacles detection based on binocular stereo vision technology

Dalian, China

- Selected the outstanding deep learning stereo vision algorithm, with KITTI data set to generate binocular stereo vision UV disparity map as the data sources.
- Read related papers, calculated U and V disparity maps through the UV disparity map, and then restored the U and V disparity maps to the original picture in order to mark the obstacles.

Research Assistant

06/2017-07/2017

Design and Implementation of Content-Based Near-Duplicate Chart Retrieval System

Dalian, China

- Learned to utilize the most popular algorithm of image features extraction, such as perceptual hash algorithm and edge detection histogram algorithm to build algorithm models
- Utilized web crawler techniques to collect pictures and charts as data sources and stored them into the SQL database.
- Designed the software framework, and used a series of frames and tools to realize the connection and coupling with front end, data base and algorithm
- Verified the robustness of algorithm through images transformation, such as stretching, expanding and shrinking, based on Python image processing technology

Industry Experience

Machine Learning Engineering Intern

09/2019-05/2020

Chinese OCR and full stack website development

Ruikebang Technology Co., Beijing, China

- Used Chinese OCR yolo+CRNN model for text detection and scanning
- Tried image processing algorithms such as Hough transform and sifted algorithm to and detect lines and characters.
- Front-end website maintenance using JavaScript, CSS and HTML.
- Develop back-end machine learning algorithms to analyze data.
- Develop queries using SQL within Java DAO to retrieve data from database.

Applied Scientist Intern

06/2024-09/2024

LLM adaptation, prompt engineering, time series forecasting

Amazon, Bellevue, US

- Construct large-scale ASIN data set with Amazon million-size data set retrieved from AWS service
- Prompt engineering and fine-tuning LLMs (llama, Claude, falcon) into the downstream tasks
- Leverage Prophet, Saison to conduct time series decomposition and forecasting

Technical Skill

Machine Learning

- **Deep Learning Framework:** TensorFlow, PyTorch
- **Machine Learning and Data Analysis Library:** Scikit-learn, Pandas, Matplotlib
- **Object Detection Framework:** OpenCV, Detection2, MM-detection
- **LLM, VLM related:** HuggingFace, LLaVA, LLaMA

Software Programming

- **Tools:** C, C++, Java, Python, R, Matlab, SQL, Tableau, Qt, Unix, CUDA, HTML, CSS, JavaScript
- **Courses:** Data Structure, Parallel Computing, Image Processing

Coupling Deep Textural and Shape Features for Sketch Recognition. PROCEEDINGS OF THE 28TH ACM INTERNATIONAL CONFERENCE ON MULTIMEDIA

Qi Jia, Xin Fan, Meiyu Yu, Yuqing Liu, Dingrong Wang, Longin Jan Latecki

Deep Reinforced Attention Regression for Partial Sketch Based Image Retrieval. PROCEEDINGS OF THE 21TH IEEE INTERNATIONAL CONFERENCE ON DATA MINING

Dingrong Wang, Hitesh Sapkota, Xumin Liu, Qi Yu

Deep Temporal Sets with Evidential Reinforced Attentions for Unique Behavioral Pattern Discovery. ICML 2023

Dingrong Wang, Deep Shankar Pandey, Qi Yu

Distributionally Robust Ensemble of Lottery Tickets Towards Calibrated Sparse Network Training. Neurips 2023

Hitesh Sapkota, Dingrong Wang, Qi Yu

LIBR+: Improving Intraoperative Liver Registration by Learning the Residual of Biomechanics-Based Deformable Registration. MICCAI 2024

Dingrong Wang, Soheil Azadvar, Jon Heiselman, Xiajun Jiang, Michael Miga, Linwei Wang

Reinforced Compressive Neural Architecture Search for Versatile Adversarial Robustness. KDD 2024

Dingrong Wang, Hitesh Sapkota, ZHIQIANG TAO, Qi Yu

Adaptive Important Region Selection with Reinforced Hierarchical Searching for Dense Object Detection. Neurips 2024

Dingrong Wang, Hitesh Sapkota, Qi Yu

Accessible Learning Labs: Accessibility Education Through Experiential Learning 2024 36th International Conference on Software Engineering Education and Training (CSEE&T)

Y Liu, X Que, D Wang, SA Malachowsky, DE Krutz

Source-Data Free Multi-Source Domain Adaptation for Unsupervised Object Detection (In Submission to CVPR)

Xiaofan Que, Dingrong Wang, Daniel Krutz, Qi Yu

Cross-domain Open Vocabulary Object Detection with Learnable Domain-adaptive Prompts (In Submission to CVPR)

Xiaofan Que, Dingrong Wang, Daniel Krutz, Qi Yu

Conservative Evidential Exploration of Long-Term User Interest in Dynamic Recommender Systems. (In Submission to ICLR)

Dingrong Wang, Krishna Prasad Neupane, Qi Yu

Calibrated Multi-Source Fully Test-Time Prompt Tuning for Object Detection (In Submission to CVPR)

Dingrong Wang, Xiaofan Que, Daniel Krutz, Qi Yu

Systematic Evaluation of Content Quality in LLMs through Fine-Grained Integration of Token-Level Uncertainty (In Submission to ARR Review)

Dingrong Wang, Spandan Pyakurel, Hitesh Sapkota, Zhiqiang Tao, Qi Yu

Inferring online retailing product seasonality via LLMs for cold-start cases (In Submission to WWW industry track)

Dingrong Wang, Zhenyu Zhang (Amazon), Jie Zhou (Amazon), Muhammad Tayyab Asif (Amazon)