Linbo Tang

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EDUCATION

BS | University of Wisconsin – Madison   Sep. 2020 – Dec. 2023(Expected)

  Majors in Computer Science & Data Science | **Accumulative GPA: 4.0/4.0**

  Academic Honor: Dean's List

I'll pursue a Master's Degree   Sep. 2024 –

TECHNICAL SKILLS

- Programming Languages: Java, Python, C/C++, R, JavaScript, CSS, HTML, Kotlin;
- Frameworks: Pytorch, Tensorflow, Scikit-Learn, MySQL, OpenCV, Flask, Selenium;
- Platforms: Isaac Sim, UE4, AWS, GCP, Docker, Linux, Git.

RESEARCH EXPERIENCES

RA | Singh's Computer Vision Lab, UW-Madison   Jan. 2023 – Present

Advisor: Professor Vikas Singh

Leading Project: Emotion Detection based on Dense Tracking

- Implementing CoTracker on Aff-Wild and EmotiW datasets to transform videos into wavelets for emotion detection;
- Formulating a Differential Equation model to analyze coupling between dense traces for optimized task performance.

Attending project: StableDiffusion and Category Theory

- Aiming to improve compositionality of StableDiffusion by identifying those embeddings that generate composable images and differentiate from those cannot and adjusting embeddings in order to generate composable images;
- Applying Category Theory to learn a morphism from text embeddings to image embeddings which satisfies reflexivity, transitivity, and neighborhood constraints.

RA | Spatial Computing and Data Mining Lab, UW-Madison   May. 2022 – Present

Advisor: Professor Qunying Huang

Attending project: Spatial-temporal Change Detection

- Developing a contrastive representation learning model for anomaly detection, focusing on detecting and categorizing the damage caused to house, road, and farm by natural disasters;
- Training on the modified xBD dataset and improved the accuracy of self-supervised change detection model STRCLR by modifying the model to accomplish the anomaly detection downstream task. A 3 percent accuracy increase has been achieved to date, with progress still under development.

RA | CARLA Automated Driving Research Project, UW-Madison   Sept. 2022 – Dec. 2022

Advisor: Dr. Keshu Wu

- Customized the sensors on connected automated vehicles (CAV) and roadside units (RSU) using CARLA Python API to collect images and CARLA simulated event data;
- Simulated the operational life cycle of the Collaborative Automated Driving System in the CARLA environment;
- Implemented end to end Detection TRansformer (DETR) for large objects in the CARLA environment.

INTERNSHIPS

Backend Developer | Ivy Unify-AI, Imperial College London (Remote)   May 2022 – Aug. 2022

Advisor: Dr. Daniel Lenton

  Attended project: Ivy Compiler Development

- Developed code transpiler to convert existing code between AI frameworks by integrating ivy backend with different frameworks' frontend APIs, including Pytorch, Tensorflow, Jax, MXnet, and Numpy;
- Worked with the research team to develop a graph compiler which decomposes the ML framework's higher-level functions into functional APIs.

Android Developer | Fotor, Chengdu Hengtu Technology Co., Chengdu, China   Jun. 2021 – Jul. 2021

  Advisor: Jiang Duan

- Developed a user interface using Android studio for the fotor application with the front-end team, and focused on building demos of the front controller and dispatcher to handle users' requests;
- Self-learned MVVM architecture and applied this architecture to separate the model and view and achieved the goal of loose coupling.

SELECTED PROJECTS

Omniverse Issac Sim Robot Development   Jun. 2023 – Present

- Designing and validated a versatile gripper for the Omniverse Isaac Sim robot, employing state-machine logic to ensure responsive adaptability across varied environments;
- Utilizing reinforcement learning techniques, Q-learrning, to optimize the robot's autonomous functions;

TA EXPERIENCES

Peer Mentor | UW-Madison   Aug. 2021 – May. 2023

- Tutored first and second-year college students in introductory and intermediate computer science courses (CS 200, CS 300, and CS 400) and leading Q&A discussions 4 hours per week and preparing coding quizzes;