

YU Mengying

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EDUCATION

Nanyang Technological University
Aug 2021 – Dec 2022

Master of Science Artificial Intelligence

GPA: 4.75/5.0

University of Nottingham Ningbo China
Sept 2017 – June 2021

Bachelor of Science with Honors in Computer Science with Artificial Intelligence in the First Class

GPA: 4.0/4.0

Head's Scholarship 2018, 2019, 2020

SKILLS

Python

Pytorch

C++

Simulation Modeling

IOS and Mobile Development

Deep Learning

Advanced Databases (SQL)

Machine Learning

Data Analysis & Visualization

CORE MODULES

Advanced Computer Vision

Natural Language Processing

Algorithms

Machine Learning

Deep Learning

Operating Systems & Concurrency

Artificial Intelligence Methods

Databases and Interfaces

Time Series

ACADEMIC EXPERIENCES

Convolutional-only Approach to Realize Efficient 3D Object Detection for Autonomous Driving **October 2022 – April 2023**

Deploying BEV-based techniques in real-world autonomous vehicles presents challenges due to their reliance on ViT. To address this, we propose BEVNet, an efficient BEV-based 3D detection framework which leverages a convolutional-only architecture.

- BEVNet is 3x faster than contemporary SOTA on the NuScenes challenge.
- Achieve a mAP of 0.456 and a NuScenes detection score (NDS) of 0.555.
- This work accepted by *IEEE Transactions on Intelligent Transportation Systems, Oral Presentation (ITSC)*.

Dataset vs Reality

December 2021 – March 2022

Deep learning technologies have brought us many models that outperform human beings on a few benchmarks. An interesting question is: can these models well solve real-world problems with similar settings to the benchmark datasets? This work analyzed datasets in the fields of Image Captioning and Question and Answering from the perspective of information need.

- Show the differences in the dataset creation process and the differences in morphosyntactic prosperities between datasets.
- The experiments are from word-level and sentence-level.
- This work accepted by Journal of *the Association for Information Science and Technology (JASIST)*.

Using Artificial Intelligence to Reshape Water Sector

July 2020 – May 2021

Collaborated with the Ningbo Municipal Water Conservancy Bureau and the Chinese Academy of Sciences to facilitate better groundwater and underground water management and utilization. Use Generative Adversarial Networks (GAN) to generate dataset, train models to estimate and predict 27 reservoirs' water quality and level.

WORKING EXPERIENCES

Desay SV Automotive Singapore Pte Ltd.

Deep Learning Engineer | June 2022 - Now

Work on 3D BEV Detection Project. Assist in memory efficient design and lateral comparison of SOTA models, propose ViT BEV model to real-world scenarios. Compared to BEVFormer-Tiny got a 3% improvement.

Base on YOLO model to design the traffic light detection model, the precision of 2D detection is reached 0.97. And will add depth estimation to realize 3D detection.

Base on YOLOP model to design DesayNet Lane detection branch, the precision of model is reached 0.98, and the recall is reached 0.96.

PUBLICATIONS

Mengying Yu, and Aixin Sun. "Dataset versus reality: Understanding model performance from the perspective of information need." *Journal of the Association for Information Science and Technology (JASIST)*.

Yuxin Li, Qiang Han, **Mengying Yu**, Yuxin Jiang, Chai Kiat Yeo, Yiheng Li, Zihang Huang, Nini Liu, Hsuanhan Chen and Xiaojun Wu. "Towards Efficient 3D Object Detection in Bird's-Eye-Space for Autonomous Driving: A Convolutional-Only Approach". *IEEE Transactions on Intelligent Transportation Systems (ITSC, Oral)*.