HAN YI

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EDUCATION

National University of Singapore (NUS) Aug. 2022 - Present
Master of Computing (Computer Science)
Courses: Uncertainty Modeling in AI, 3D Computer Vision, Knowledge Discovery and Data Mining

East China University of Science and Technology (ECUST) Sep. 2018 - June. 2022
Bachelor of Science in Mathematics and Applied Mathematics (Major)
GPA: 3.7 / 4.0 Ranking: 13% (12 / 90)

Bachelor of Science in Computer Science (Minor)

PUBLICATIONS

1. **Progressive Text-to-3D Generation for Automatic 3D Prototyping.**
   Han Yi, Zhedong Zheng, Xiangyu Xu, Tat-seng Chua
   *IEEE Conference on Robotics and Automation (**ICRA 2024**) (Submitted)*
   arXiv: 2309.14600, 2023

2. **Image Deblurring with Image Blurring.**
   Ziyao Li, Zhi Gao, **Han Yi**, Yu Fu, Boan Chen.
   *IEEE Transactions on Image Processing (**TIP 2023**)*

3. **Single Image Deraindrop Leveraging Luminance Priors and Context Aggregation.**
   Yi Liu, Zhi Gao, Tiancan Mei, **Han Yi**
   *IEEE Transactions on Image Processing (**TIP 2023**) (Under review)*

4. **Motion Blur Synthesis for Image Deblurring via Disentangling Latent Blur Space.**
   Ziyao Li, **Han Yi**, Zhiyu Zhou, Xuhui Zhao, Zhi Gao
   *IEEE Signal Processing Letters (**SPL 2023**) (Under review)*

5. **A hierarchical geometry-to-semantic fusion GNN framework for earth surface anomalies detection.**
   Boan Chen, Aohan Hu, Mengjie Xie, Zhi Gao, Xuhui Zhao, **Han Yi**
   *International Conference On Brain-Inspired Cognitive Systems (**BICS 2023**) (**Best Student Paper**)*

6. **How Challenging is a Challenge for SLAM? An Answer from Quantitative Visual Evaluation.**
   Xuhui Zhao, Zhi Gao, Hao Li, Chenyang Li, Jingwei Chen, **Han Yi**
   *International Conference On Brain-Inspired Cognitive Systems (**BICS 2023**)*

RESEARCH EXPERIENCE

Progressive Text-to-3D Generation for Automatic 3D Prototyping Dec. 2022 - Present
NExT++ Research Center, National University of Singapore *Advisor: Prof. Tat-seng Chua*

- Proposed a **Multi-Scale Triplane Network (MTN)** to gradually create the 3D model in a bottom-up style, effectively alleviating the optimization issue.
- Proposed a **progressive learning** strategy that simultaneously reduces the camera radius and time step t in diffusion to refine details of the 3D model in a coarse-to-fine manner.
- Achieved high-resolution outputs that align closely with natural language descriptions.

Image Deblurring with Image Blurring Nov. 2021 - Oct. 2022
Wuhan University *Advisor: Prof. Zhi Gao*

- Proposed a novel **motion deblurring** framework that uniquely integrates both **image blurring** and **deblurring** processes, enhancing performance and robustness.

- Synthesized a blur-sharp paired blur dataset **Rear-Blur-COCOmini** to bridge the gap between the training dataset and real-world blur images.
- Obtained state-of the-art deblurred results on multiple datasets and introduced the **Variance of Laplacian edge detection (VL)** to quantitatively evaluate the effect on datasets without ground truth.

LED Visible Light Positioning Algorithm July. 2021 - Sep. 2021
Tsinghua University *Advisor: Prof. Hao Zhang*

- Programmed LED lights on the ceiling with Manchester coding.
- Utilized **Solvepnp** algorithm from **OpenCV** to localize the relative position against the LED lights.
- Improved the algorithm from reducing the number of LED lights required, solving problems such as special positions, turning angle problems, etc.
- Introduced **Malformation Matrix** to fix the real-world error to further boost the accuracy.

Maintenance System with Predictability Figuration Sep. 2020 - Mar. 2021
Tsinghua University *Advisor: Prof. Hao Zhang*

- Built predictive models to calculate **RUL** (Remaining Useful Life) and predict necessary maintenance jobs.
- Utilized **Abrupt Detection**, such as **Pettitt Detection and Mann-Kendall Detection**, to deal with continuously fluctuating sensor data.
- Optimized the efficiency of **Abrupt Detection** with **Cumulative Sum Control Chart** and **Exponentially Weighted Moving-Average** methods.

INTERNSHIPS

Google Inc. Online Internship May. 2019 - Aug. 2019
Data Analyst Intern

- Implemented **A/B testings** and **data cleaning** on user data using **Spark**, **Numpy**, **and Scikit-learn**.
- Applied **Pandas**, **Matplotlib**, **Seaborn** to visualize the user data and more intuitively reflect the users' experience.
- Utilized **Python**, **SQL** to evaluate and analyze use experience on the products and provide reasonable suggestions.

COURSE PROJECTS

Singapore Real Estate Price Prediction and Recommendation with Machine Learning

- Applied **data cleaning**, **feature selection**, **and EDA** on data using **Pandas**, **Scikit-learn**, **and Numpy**.
- Trained regression models using **Decision Tree, Random Forest, Gradient Boosting, LightGBM, XGBoost, and CatBoost** and compared their efficiency.
- Built a **recommender system** using **Non-negative Matrix Factorization and cosine similarity**.

HONORS

03/2020 Meritorious Winner of 2020 Mathematical Contest in Modeling (MCM) by COMAP
10/2019 The 3rd Prize Award in the Preliminary Round of the 2019 "FLTRP•ETIC Cup" English Reading Contest
11/2019 The 2nd Prize Award in the university scholarship in the academic year of 2018-2019
06/2019 NDG Linux Essentials Certificate

SKILLS

Programming: Python, C/C++, JavaScript, SQL, HTML5, CSS3, Bash
Library/Framework: Pytorch, Tensorflow, Keras, Pandas, Numpy, Scikit-learn, Seaborn, Vue, Echarts, Django
Tool: Docker, Spark, Hadoop, Git