

DENGJIA ZHANG

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🎓 EDUCATION

Beijing Jiao Tong University (BJTU), Beijing, China Sept. 2020 – June 2024(expected)

BSc Information and Computing Science in School of Advanced Technology

- GPA 3.86/4.0
- WAM 90.7/100

Main Courses: Mathematical Analysis(A), Advanced Algebra(A), Data Structures(A), Discrete Mathematics(A), Fundamental of Digital System(A), Probability Theory and Mathematical Statistics(A), Computer Organization(A), Electrotechnics(A), Software engineering(A), Assembly and Interface Technologies(A), Operating Systems(A), Computer Architecture(B+), Compilation Principles(A), Deep Learning(A), Digital Image Processing(A)

🔬 RESEARCH EXPERIENCE

Unsupervised Depth Estimation in Light Field

Apr. 2022 – Apr. 2023

Supervisor: Professor Shuo Zhang

- Evaluated and experimented with an Attention-based View Selection Networks for light field disparity estimation and confirmed its weak performance in non-textured and occluded areas.
- Developed occlusion aware module and smooth loss that improved performance as confirmed by ablation experiment.
- Used Python and PyTorch to build models and visualize results, reducing the mean squared error by 50%.

Physiological Signal Classification Based on Confidence Calibration

Oct. 2022 – Apr. 2023

Supervisor: Professor Jing Wang

- Experimented with U-Sleep model as the baseline to improve the performance of sleep signal classification.
- Developed Gaussian Sampling to baseline to make signals more evenly distributed and used Focal Loss to address the gross imbalance between positive and negative samples.
- Chose Expected Calibration Error (ECE) as a more reliable metric and reduced the ECE by 70% as compared to the baseline model.

Few-Shot Semantic Segmentation Method

Feb. 2023 – Present

Supervisor: Professor Runmin Cong

- The main goal is to develop a more precise semantic segmentation model through small sample sizes.
- Used Cyc-Consistent model as baseline and explored different approaches such as taking top k most similar points.
- Increased the MIoU by 0.5 as compared to the baseline in the first three fold of cross validation.

💻 PROJECT EXPERIENCE

VOStyle

Dec. 2022 – Present

Project Page: <https://github.com/Miracle-2001/VOStyle>

- Developed a UI interface for video-level semantic segmentation in the project which allows users to segment not only images but also videos.
- The interface can perform semantic segmentation not only for images but also for videos
- To segment a video, users only need to select the object to be segmented in the first frame, and the network will use the AOT model to segment the object in the entire video.

Simple CPU Design based on VHDL

Feb. 2022 – June 2022

Individual Project

- Successfully simulated and designed a small CPU based on the RISC-V instruction set architecture using VHDL language in the first half of 2022
- The CPU was capable of basic logical operations and was used to compute the 64th number in the Fibonacci sequence, validating its functionality

China Telecommunications Corporation

July 2022 – Aug. 2022

Summer Intern Manager: Mrs. He

- Coordinated projects and collected data during the internship
- Received outstanding evaluation upon completion of the internship

♥ HONORS AND AWARDS

3 rd Prize, Award on Blue Bridge Cup Competition, Beijing Division	Apr. 2023
3 rd Prize, Award on Beijing Jiao Tong University Programming Competition	Apr. 2023
1 st Prize, Award on Beijing Jiao Tong University Blue Bridge Cup Competition	Feb. 2023
3 rd Prize, Award on Beijing Jiao Tong University Programming Competition	Oct. 2022
2 nd Prize, Award on China Undergraduate Mathematical Contest in Modeling	Oct. 2022
2 nd Prize, Award on Beijing Jiao Tong University Second-Level Academic Scholarship, top 10%	2021 - 2022
1 st Prize, Award on China Undergraduate Statistical Modeling Contest	Apr. 2022
2 nd Prize, Award on Beijing Jiao Tong University Mathematical Contest in Modeling	Apr. 2022
2 nd Prize, Award on Beijing Jiao Tong University Blue Bridge Cup Competition	Dec. 2021
3 rd Prize, Award on Beijing Jiao Tong University 'Challenge Cup' Competition	Oct. 2021
1 st Prize, Award on Beijing Jiao Tong University First-Level Academic Scholarship, top 3%	2020 - 2021
Silver Medal, Award on Beijing 'Challenge Cup' Entrepreneurship Sub-center Competition	Dec. 2021
Silver Medal, Award on Beijing 'Challenge Cup' Business Plan Winter Olympics Competition	Nov. 2021
Honorable Title, Beijing Jiao Tong University Excellent League Member	2021 - 2022
Honorable Title, Beijing Jiao Tong University Merit Student	2021 - 2022
Honorable Title, Beijing Jiao Tong University Advanced Individual	2020 - 2021
Honorable Title, Beijing Jiao Tong University Merit Student	2020 - 2021

⚙ SKILLS

- Software: Linux, macOS, Windows
- Programming Skills: Python, C/C++, Java, VHDL, MySQL, Assembly Language, Hadoop, Git, Pytorch, latex