# DENGJIA ZHANG

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## 🎓 EDUCATION

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

*BSc* in Computer Science and 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 improve the robustness of the model 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.
- 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

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| *Honorable Mention*, Award on Interdisciplinary Contest in Modeling | Apr. 2023 |
| $3^{rd}$ *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 Ttile*, 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