

# Mingqian Liao

SUSTech, China

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## Education

### Southern University of Science and Technology

Turing Class, Senior Undergraduate

Shenzhen, China

Sept 2020 - June 2024

- Major / GPA: Computer Science; 3.74/4 (90.42)
- 2022 SUSTech Outstanding Student Scholarships **Second Prize**
- 2022 ASC Student Supercompute Challenge **First Prize**
- 2022 APAC HPC-AI Competition - **Second Place**

### University of California, Berkeley

Visiting Student

Berkeley, USA

Jan 2023 - June 2023

- Main Subject: Deep Learning and Computer Vision
- **Courses:** Machine Learning(CS189), Deep Learning(CS182), Graduate Computer Vision(CS280), Operating System(CS162)

### Johns Hopkins University

Undergraduate Research Assistant

Baltimore, United States

Augu 2020 - Febr 2024

- Supervisor: Dr. Vishal M. Patel
- Research Focus: Thermal-Visible Image Fusion and Thermal-NeRF

## Research Experience

### Johns Hopkins University

Undergraduate Research Assistant

Baltimore, United States

Aug 2023 - Feb 2024

- Collect the thermal and visible NeRF dataset
- Build model for image fusion
- Build model for low light NeRF

### Southern University of Science and Technology

Research Student

Shenzhen, China

Jul 2021 - Current

- Build a virtual surgical instrument and fundus database
- Conduct a series of experiments and optimizations to migrate the model in the self-driving depth prediction scene into the surgical scene
- Design a model to output the corresponding depth video from the input fundus surgery video

## Honors & Awards

2023	<b>Meritorious Winner</b> , MCM/ICM	COMAP
2023	<b>Distinguished Student Assistant</b> , Student Assistant in Computer Network	SUSTech
2022	<b>"Intelligent Pedestal" Industry-Education Integration Collaborative Education Project Scholarship</b> , Excel in Machine Learning course	Shenzhen
2022	<b>"Intelligent Pedestal" Industry-Education Integration Collaborative Education Project Scholarship</b> , Excel in C/C++ Program Design course	Shenzhen
2022	<b>First Prize</b> , ASC Student Supercompute Challenge	Asia Supercomputer Community
2022	<b>Second Place</b> , 2022 APAC HPC-AI Competition	Singapore
2022	<b>Special Prize</b> , The 9th "League Cup" Undergraduate English Writing Contest	Guangdong Province
2022	<b>The 2nd prize</b> , SUSTech Excellent Student Scholarship	SUSTech
2021	<b>The 3rd prize</b> , SUSTech Excellent Student Scholarship	SUSTech
2020	<b>Special Prize</b> , Freshman Scholarship, ranked 2/1097 among all the freshmen	SUSTech

## Competitions and Projects

## Digging deeper into the value of Wordle through time series analysis and natural language processing

China

MCM 2023

Feb 2023

- Build time series models to explain changes in the number of active Wordle players and predict future trends
- Establish a probabilistic regression model of the distribution of guessing times to analyze the difficulty of Wordle games
- Use clustering algorithms to grade the difficulty of the game, and combine natural language processing techniques to build a classification model from the puzzle to infer the difficulty rating of the game

## Deep-Learning-Based DNA Fast Decoding

Singapore

HPC-AI Advisory Council, National Supercomputing Centre (NSCC) Singapore, and National

Jan 2022 - Nov 2022

Computational Infrastructure (NCI) Australia

- Design a model to predict transcription factor's binding site based on the input DNA sequence and DNase-sequence
- Improve the model using the key part of UNet and Leopard and use horovod to train the network distributedly

## Neural Network for self-driving data augmentation

Shenzhen, China

Southern University of Science and Technology

Nov 2022 - Jan 2022

- Augment the automated driving dataset using the Stable Diffusion model as well as the Textual Inversion model
- Conduct experiments on the prompt to guide the direction of augmentation, and on the sampling method to augment

## Intelligent identification of ancient glass objects given statistical machine semester under small sample size

China

CUMCM 2022

Sep 2022

- Build a cardinality test and decision tree to explore the relationship between the weather ability of ancient glass objects and their properties
- Establish a probabilistic regression model of the distribution of guessing times to analyze the difficulty of Wordle games
- Identifying Significant Changes in Composition of Lead-Barium Glass and High Potassium Glass Before and After Weathering Using KS Test
- Construct regression models using semi-supervised learning to infer the chemical composition of a given glass artifact before weathering

## Teaching Experience

### Southern University of Science and Technology

Shenzhen, China

Student Assistant in CS305 Computer Network course

Sep 2022 - Feb 2023

- Checking Lab exercises, and answering questions from students in class and after class
- Designing and grading Assignments for the course

### Southern University of Science and Technology

Shenzhen, China

Distinguished Student Assistant in CS205 C/C++ Program Design course

Feb 2022 - Feb 2023

- Checking Lab exercises, and answering questions from students in class and after class.
- Designing and grading Assignments for the course

## Extracurricular Experience

### Shuren College Media Studio of SUSTech

Shenzhen, China

Secretary

Sep 2020 - Sep 2022

- Organize events and produce promotions

### Volunteer Federation of SUSTech

Shenzhen, China

Office Member

Sep 2020 - Sep 2021

- liaise with other departments and organize volunteer activities

## Language Ability

**English** TOEFL score 107 (Reading 28, Listening 29, Writing 27, Speaking 23)

## Skills

**Programming** Python(Numpy, Pytorch), Linux, C/C++, Java, SQL, Vue2, Git, Matlab

**Soft Skills** Teamwork, Time Management, Documentation, Presentation