Qiu Chenghao

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EDUCATION

Tianjin University **09/2021-06/2025**

Bachelor of Engineering in Computer Science and Technology GPA: 88.99/100 Ranking: 3/53

Honors:

- School-level Project, National College Students Innovation and Entrepreneurship Competition
- Merit Student of School of Future Technology, Tianjin University
- Third Prize of the "Next 30 years" Innovation Contest, School of Future Technology, Tianjin University
- Second Prize of 2023 Tianjin University 16th Challenge Cup National College Students' Extracurricular Academic Science and Technology Contest
- Second Prize of 2022 Tianjin University 15th Challenge Cup National College Students' Extracurricular Academic Science and Technology Contest

RESEARCH AND PROJECTS

National College Students Innovation and Entrepreneurship Project: Collection and Analysis of Electrophysiological Data Leveraging Edge Cloud Computing **04/2023-Now**

Research Assistant | Adviser: Tang, Shanjiang | Tianjin University

- **Objective:** To develop an edge-cloud collaborative platform for the extensive acquisition and computation of neurophysiological signals, aiming at real-time collection of multimodal high-throughput neurophysiological signals, secure transmission, efficient storage, rapid retrieval, and edge-cloud collaborative computing.
- **In progress:** Developed a data acquisition classification system to process electrophysiological signals like EEG, ECoG, and ECG; Created a function toolkit for multimodal neurophysiological signal data based on extant literature and open-source programs such as MNE, MetaBCI, Brainflow, and Brainda; Proposed a method for data storage tailored for massive neurophysiological signals based on HDFS and Alluxio; Implemented a distributed electrophysiological signal query system based on Apache Spark, enabling efficient retrieval of petabyte-scale data.

ERNIE Bot Boot Camp **07/2023-09/2023**

Summer practice | Tianjin University

- Developed a plugin to query Peking Opera faces of historical figures using Prompt Engineering based on ERNIE Bot;
- Developed an intelligent web application for Peking Opera facial makeup, featuring style transfer to digitally wear traditional masks. Participated in both the web front-end and back-end development using Vue.js and ES Modules.;
- Built a proxy server to implement cross-domain requests between front-end and back-end.

A Novel Biomimetic Robotic Arm Based on Topological Origami and Hyperboloid Mechanism **04/2023-06/2023**

Workshop | Adviser: Li, Junlan | Tianjin University

- Employed the ESP32 single-chip microcontroller and Arduino to develop the core program of the robotic arm, enabling both individual and grouped manipulation of four servos;
- Mastered the BLE protocol, and scripted a program to establish Bluetooth connections, transmit, and receive data;
- Developed an interactive App based on Bluetooth debugger for mobile devices to send commands to the ESP32;
- Conducted tests to validate the proper functioning of Bluetooth communication and control features.

Automatic Guided Vehicle (AGV) **09/2021-12/2021**

Coursework | Tianjin University

- Developed the core program based on Arduino to implement the main functions of intelligent trajectory,

autonomous placement, and speed control;
- Participated in the installation of AGV and performed motion analysis using SolidWorks.

ACADEMIC COMPETITIONS

The "Next 30 years" Innovation Contest **05/2023-06/2023**

Business proposal of a biological security intelligent defense platform

- **Objective:** Constructing a large-scale protein function prediction model utilizing deep learning techniques, with the goal of predicting the protein structure and function of unfamiliar genomic sequences. This facilitates the evaluation of their biological security levels and threat assessments.
- Proposed a protein function prediction approach centered on Protein-protein interaction (PPI) networks and topological features, synthesizing the latest research methods and theories in protein function prediction.

2023 Tianjin University 16th Challenge Cup National College Students' Extracurricular Academic Science and Technology Contest **03/2023-04/2023**

Business proposal of an intelligent sterilizer

- **Objective:** Developing an intelligent device that integrates disinfection, sterilization, and air purification, achieving rapid and comprehensive disinfection of indoor environments. This innovation aims to enhance disinfection efficiency, reduce labor costs, and provide robust support for epidemic prevention and control efforts.
- Introduced the fuzzy PID control algorithm on top of studying the traditional PID control algorithm, enhancing navigation deviation correction performance;
- Wrote driver programs with STM32CubeIDE to communicate with sensors and actuators, and develop control logic to automate tasks based on sensor data.

2022 Tianjin University 15th Challenge Cup National College Students' Extracurricular Academic Science and Technology Contest **02/2022-06/2022**

Intelligent Unmanned Surface Vessel with Stratified Intake Structure

- **Objective:** Developing a small, lightweight, and long-endurance intelligent unmanned water sampling vessel implementing autonomous navigation, automatic water sampling, real-time water quality monitoring, and other functions.
- Leveraged Raspberry Pi and Python library OpenCV to realize real-time camera capture;
- Designed video surveillance components by SolidWorks.

SKILLS

- **Programming Languages**: Proficient in C++, Python, and MySQL.
- **Machine Learning**: Familiar with Deep Learning frameworks and concepts, including PyTorch and GPT models.
- **Development Tools**: Skilled in using Arduino, Linux, Git, VScode, PyCharm, Anaconda, Wireshark, Modelsim, Docker, VMware, and WSL.