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Educational Background

Wuhan University   09/2020—06/2024
Degree: Bachelor of Engineering in Software Engineering (Expected)   GPA: 3.7/4.0
Honor: The First Prize in The Chinese Mathematics Competitions
　　　　The First Prize in the National College Students Internet of Things Design Competition
　　　　Enterprise innovation award of ti track

Competitions

National College Students Internet of Things Design Competition   07/2023—08/2023
Candidate (Team Leader)   **Supervisor**: Prof. Weiping Zhu
Objective: To employ millimeter-wave radar to alert and improve students' sitting posture while also monitoring vital signs like breathing and heart rate for overall well-being assessment

- Constructed the hardware framework of our project using the TI IWR1843Boost millimeter-wave radar module and the DCA1000 board; Integrated these components with our Windows PC to realize communication and data interaction; utilized Python to implement the software framework and process, and visualize the received sensor data **(System Setup)**
- Connected the radar device and the specified port to receive the raw data stream from the radar; extracted each frame, a single measurement cycle of the radar, to capture the signals reflected from the objects within the radar's range; performed a Fourier transform on the signal to obtain the Range-Angle-Doppler heatmap, analyzing the interpreting the radar data to determine the posture of the detected objects **(Data Acquisition and Preprocessing Module)**
- Employed HRNet and SimCC networks to predict the coordinates of human body key points and the head; visualized them to provide users with real-time feedback on their sitting posture (**Posture Assessment Module)**
- Compared various data processing methods such as empirical Mode Decomposition (EMD), Fast Fourier Transform (FFT), and Variational Mode Decomposition (VMD), calculating the average differences between heart and respiration rates obtained through different methods and their corresponding ground truth values **(Vital Signs Detection Module)**
- Developed a local graphical user interface (GUI) as well as a web-based interface using the Python Streamlit framework, enabling users to access the web page and monitor their sitting posture and overall health status in real time **(Visualization Display Module)**

Research Experiences

AI-driven Human-computer Interaction Project with a Focus on Voice-to-text, Text-to-speech, and Facial Recognition   07/2023—10/2023
Research Assistant   Supervisor: Mr. Wang
Objective: To employ Whisper to voice-to-text, interfaced with ChatGPT for responses, use Bark for speech synthesis, and integrate facial animation models for real-time face-to-face dialogues

- Designed a frontend interface using the Gradio framework for deep learning and machine learning visualization; implemented a user-friendly interface with features such as a microphone for voice input, an image input box for selecting a face for video generation, a chat window for AI interaction, parameter adjustment sliders for model debugging, video display box for showcasing the final generated face video **(Frontend Design)**
- Implemented an AI response module using the ChatGPT interface, integrated Whisper for converting user voice to text, and used the OpenAI Python package to create a ChatCompletion object for obtaining AI responses **(AI Response Module)**

- Developed a module for generating talking faces, incorporating parameters like a preset face photo, desired audio, and model parameters (batch size, image cropping, etc.); utilized the Sadtalker model to download its source code locally and integrated it into the frontend for audio-driven video generation **(Face Model Generation)**
- Improved the speed of the Sadtalker model to address slow video generation on CPU and implemented optimization such as converting float32 to int8 during the generation of 3DMM coefficients; set a threshold of the mask generated by the densemotion function to reduce computational cost in subsequent matrix operations, enhancing the efficiency of face animation generation **(System Optimization)**

Course Projects

Anti-Fraud Public Donation Platform   06/2022—07/2022

Objective: To empower users by providing a frontend interface to explore and engage with various charitable events available for donation and ensure integrity and transparency within the realm of philanthropic contributions

- Utilized Vue framework to develop an interactive frontend, coupled with Spring Boot framework for backend development, achieving the creation of user interfaces, seamless data exchange, and communication between frontend and backend components **(Designed and Developed Frontend and Backend Systems)**
- Envisioned and executed a streamlined process that empowers users to register accounts and access the system securely through authentication credentials **(Implemented User Registration and Authentication)**
- Set up a blockchain network, involving the creation and interconnection of nodes, to realize the interaction between the system and the network; recorded the donation-related information onto the blockchain for enhanced transparency **(Established Blockchain Network)**
- Enabled users to engage in donation activities through the system; captured and stored pertinent details such as donation amount and donor information within a newly generated blockchain block **(Executed Donation Functionality)**
- Developed a comprehensive querying feature, enabling users to access their donation records and associated information; leveraged interaction with the blockchain to retrieve donation data, subsequently showcasing it to users through an intuitive presentation **(Implemented Donation Information Query and Presentation)**

Extracurricular Activities

足球比赛，

EG

Team Member, NCSU International Student (Chinese) Basketball Club   06/2020—06/2023
- Joined weekly practice and worked together to participate in various games and tournaments
- Awarded the champion of Wuhan University Freshmen Cup
- Runner-up of Zhenxing Cup

Technical Skills

- **Computer Skills:** Python, Java, C++
- **Language Skills:** English (Proficient); Chinese (Native)