Yueyan Pang

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EDUCATION

Columbia University New York, NY

MS in Electrical Engineering Expected Dec 2025

Courses: Brain Computer Interface, Machine Learning, Digital Signal Processing, Introduction to Genomic Information Science and Technology

Beijing University of Technology Beijing, CN

BEng in Software Engineering GPA: 3.77/4.00 Sep 2020 - July 2024

Relevant Courses: Advanced Software Developing Technology for Embedded System (96), Technologies and Applications of Internet of Things (98), Computer Vision (93), Data Mining (95)

ACADEMIC EXPERIENCE

Intelligence Engineering Lab, Institute of Software, Chinese Academy of Sciences Beijing, CN

Research Assistant Intern (advisor: Prof. Teng Han) July 2023 – Sep 2023

ElectroClick: Enhancing Button Experiences on Surfaces with Force-Coupled Electrotactile Sensations (Submitted to CHI 2024)

This project presented a novel approach to emulate virtual buttons using electrotactile methods. The project's adaptability across different platforms, encompassing mouse, touchscreen, and VR/AR environments, underscores its potential significance in enhancing user interfaces and interaction experiences.

- Cooperated with two students to build a UGUI experimental platform for user experiments.
- Wrote a Python script to batch process 240 user data files on just noticeable difference (JND) for various perception dimensions of electrotactile during 4 different button-click phases.
- Performed quantitative data analysis and data visualization in Python and SPSS, utilized 3 types of significance tests and created 4 different types of charts.
- Co-authored a paper with five senior students and professor; presented insights on electrotactile interaction.

Intelligence Engineering Lab, Institute of Software, Chinese Academy of Sciences Beijing, CN

Research Assistant Intern (advisor: Prof. Teng Han) July 2022 – Oct 2022

- Engineered flexible actuators based on magnetically actuated, pneumatic drive and electrohydraulic.
- Executed 3D modeling and printing, using chemicals to make flexible wearable devices with electrohydraulic and pneumatic. Controlled microfluidics and microforce sensors to quantitatively analyze the pressure generated by thin-film actuators.
- Conducted quantitative evaluations on actuators utilizing various drive technologies, iteratively refining equipment for enhanced performance.

PROFESSIONAL EXPERIENCE

Beijing Aeonmed Co., Ltd. Beijing, CN

Product Manager Intern Dec 2023 - Mar 2024

- Communicated with sales staff on user feedback and led iteration and interaction design of second generation home ventilator software.
- Organized three review meetings with developers to establish development plans and testing acceptance cycles.
- Collaborated with respiratory physician to refine five data visualization issues based on user feedback and medical

needs, reducing dashboard ambiguity by 71%.

PROJECT EXPERIENCE

Wearable Environment Alert System with Sound Perception Technology for the Hearing Impaired Spring 2024

Independent Project

- Extracted time-frequency domain features from the ESC50 open-source dataset, utilizing PANN-CNN14 for transfer learning.
- Developed a Bluetooth 2.0 communication electro-tactile feedback module driven by an array of thin-film electrodes.
- Implemented a user-friendly real-time sound collection and classification software on Android devices, compatible with electro-tactile feedback Bluetooth devices.
- Verified auxiliary effect of equipment on hearing-impaired individuals through testing and evaluation, focusing on both subjective assessments and objective usability metrics.

HRV Psychoanalysis and Rehabilitation System based on Wearable Computing Fall 2023

The system gathers ECG signals via wearables to calculate HRV data and introduces a unique game interaction approach by controlling Unity racing games through HRV data for psychological rehabilitation.

- Integrated the open-source dataset YAAD and implemented ResNet18 to learn from emotion annotation features labels in ECG and GSR data.
- Developed a Unity-based racing game that utilizes the anxiety index from the psychoanalysis system to dynamically control the racing speed.

Intraoperative Cardiac Ultrasound Evaluation based on Ultrasound Imaging and AI Summer 2023

Conducted research utilizing a dataset of 35 Trans Esophageal Echocardiography videos obtained from the Department of Anesthesiology at Peking Union Medical College Hospital. Preprocessed the videos, extracting approximately 50 frames per second, capturing complete cardiac cycles, to be used as experimental data.

- Randomly divided the dataset into training, validation, and testing sets, maintaining a ratio of 7:1.5:1.5.
- Employed TransUNet for left ventricular image segmentation, achieving delineation of the ventricular boundaries.
- Utilized external circle fitting and the Teichholz formula to estimate the end-diastolic volume (EDV), end- systolic volume (ESV), left ventricular ejection fraction (LVEF).

"Smile": Micro Campus Community based on WeChat Mini Program Summer 2023

- Designed product prototype layouts using Figma and actively engaged in front-end development.
- Contributed to the development of the ChatGML interface call (Tsinghua University's open source NLP model), implementing question-and-answer interaction between users and AI within the App.
- The cumulative number of users has exceeded 5000.

SKILLS

Programming: Python, R, Matlab, MySQL, JAVA, JavaScript, CSS/HTML, C/C++
Applications: Jupyter, VSCode, VM, Linux (Ubuntu), Android Studio, Arduino IDE, Fusion
Research Methods: Survey, Interviews, Usability Testing

EXTRACURRICULAR ACTIVITIES

Volunteer club member

- Established compassionate one-on-one companionships with autistic individuals, fostering verbal communication and

engaging in collaborative sports activities.

- Conducted volunteer teaching activities for underprivileged children in mountainous regions, delivering music and physical education classes.

HONORS AND AWARDS

Scholarship

- Academic Excellence Award, BJUT (ranking 3%) Oct. 2023
- Excellence Student Cadre, Faculty of Information Technology Oct. 2023

Competition

- The Second Prize in North China Division in the 2023 HUAWEI CUP National Undergraduate IoT Design Contest
- The Third Prize in Preliminary Round in the 9th China International College Students 'Internet+' Innovation and Entrepreneurship Competition
- The Second Prize in Final Contest in the 2023 (16th) Chinese Collegiate Computing Competition
- The Second Prize in Final Contest in the 2022 HUAWEI CUP National Undergraduate IoT Design Contest