FAN Xiao

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Education

Zhejiang University (ZJU) — Hangzhou, China
Bachelor of Engineeing in Electrical Engineering - Edison Honor Class — *Sept. 2016 – Jul. 2020*
- GPA: 3.93 / 4.0 (90.64 / 100) | Third year GPA: 3.96 / 4.0 (90.97 / 100) | Rank: 3 / 90

Columbia University in the City of New York — New York, NY
Visiting student — *Sept. 2018 – Dec. 2018*
- GPA: 4.0 / 4.3

University of California, Los Angeles — Los Angeles, CA
Visiting student - Cross Disciplinary Scholarship of Science and Technology (CSST) program — *Jul. 2019 – Sept. 2019*
- GPA: 4.0 / 4.0

Projects

Sliding Mode Observer-Based Sensorless FOC Control for PMSM — Sept. 2018 – Dec 2018
Columbia University — *New York, NY*
- Developed a conventional FOC with angle sensor attached to the system which is feasible in the PLECS
- Exploited the Sliding-Mode Observer (SMO) to replace the sensor and compare the performances of the two different strategies
- Made alternates on the PID parameter and sliding-mode to decrease the response time and overshoot as well as improve the energy efficiency based on the simulation result of PMSM performance via PLECS platform
- Used DSP (TI C2000 series), motor driver (DRV8301) and mini-scaled sensorless PMSM to implement the system based on the parameters adopted from simulation, then adjust it to optimize the performance

Stethoscope Pi — Jul. 2019 – Sept. 2019
UCLA HCI lab — *Los Angeles, CA*
- Designed the preprocess circuit schematic and simulated in PSpice according to the requirements of technical parameters to test its amplification and low pass filter functions
- Completed operational amplifier chip selection, capacitor and resistor selection, component packaging determination. Devised the preprocess circuit PCB in Altium Designer. Conducted PCB printing, PCB soldering, and PCB testing
- Selected the microphone after comparing dozens of models in consideration of the diameter, sensitivity, power supply voltage, price, ease of installation, etc. and then mounted it on the chest piece
- Implemented and compared the denoising algorithm, heart sound segmentation algorithm using Normalized Average Shannon Energy (NASE)
- Implemented Mel Frequency Cepstral Coefficients (MFCC) and frequency power spectrum feature extraction
- Used Support Vector Machine (SVM) classifier to train the model based on the online heart sound library dataset and collaborated with a Singaporean cardiovascular doctor to verify the outcome

Raspberry Pi-Based Lab Power Control System — Mar. 2018 – Jul. 2018
Zhejiang University — *Hangzhou, China*
- Configurated Raspberry Pi's environment and dependencies, including OpenCV installation, CSI camera mounting and driver testing
- Designed and built the relay driver PCB to implement power switch controlled by GPIOs of the Raspberry Pi
- Connect the DHT11 temperature and humidity sensor with Raspberry Pi using I^2C protocol
- Developed the Android APP using socket programming to realize communication between Raspberry Pi and smartphone. The app allows users to directly switch on or off the power in the lab as well as enable or disable the facial recognition and motion detection. The temperature and humidity of lab is also displayed in real time. The power can be cut off emergently in case these parameters exceed certain thresholds
- Wrote an 8-page paper and gave multiple presentations on-campus
- Graded 99/100 by mentor. Case to be included in Prof. Sun's textbook 'Practical Tutorial on Signal Analysis and Processing' (Publisher: Publishing House of Electronics Industry)

Honors & Awards

Outstanding Graduates of Zhejiang Province Zhejiang Education Dept. Jul. 2020
Outstanding Graduates of Zhejiang University ZJU Jul. 2020
Outstanding Undergraduate Thesis of Zhejiang University ZJU Jul. 2020
Outstanding Student Honor ZJU Dec. 2020
Wang Guosong Scholarship Highest honor of Electrical Engineering College, ZJU Oct. 2019
National Scholarship the Minister of Education of the P.R.C Dec. 2018
First Prize of the National Talents Training Base ZJU Dec. 2018
First-Class Scholarship for Outstanding Merits ZJU Dec. 2018
First-Class Scholarship for Outstanding Students ZJU Dec. 2018
Silan Inc Scholarship Silan Inc. Dec. 2018
First-Class Scholarship for Outstanding Students ZJU Dec. 2017
First-Class Scholarship for Outstanding Merits ZJU Dec. 2017
Provincial Government Prize Zhejiang Education Dept. Sept. 2017
First Place of English Reading Contest of Zhejiang University ZJU Jul. 2017
Third Place of College Physics Competition of Zhejiang Province Physics Association of Zhejiang Province May 2017

Publications

FAN Xiao, PAN Benren, et al, **Research of Embedded Simulation Platform for DC-DC Power Converters**, *Electrical & Energy Management Technology*, 2020(9): 63-67 DOI: 10.16628/j.cnki.2095-8188.2020.09.012

Granted Patents

FAN Xiao, HU Shuang, **Pupil Detection Method & Equipment Based on Dual Camera**, Application No.: CN202010844723.5

CHEN Xiang, **FAN Xiao**, **In-car Mixed Reality Display Method & Equipment**, Application No.: CN202011089648.2

CHEN Xiang, **FAN Xiao**, **Automated Driving Model Sampling, Training Method, Equipment & System**, Application No.: CN20201129255.X

Extracurricular Activities

Department Head Sept. 2016 – June 2017
Organization Department of Robotics Association, ZJU *Hangzhou, China*
Organized the Third ZJU Soft Robotics Innovation Match and Final Competition of International Conference on Robotics and Automation (ICRA) 2018 Soft Material Robot Challenge of China

Team Leader Nov. 2016 – Apr. 2017
Youth Volunteers Association, ZJU *Hangzhou, China*
Provided instruction and guidance services in Westbrook National Wetland Museum Volunteer Program

Team Member Sept. 2016
Freshmen Cup Basketball Match, ZJU *Hangzhou, China*
Participated the Freshman Cup Basketball Match of ZJU as a freshman and got the second runner-up

Skills & Hobbies

Languages: C, C++, Javascript, Python, Matlab/Simulink, Bash, Markdown, LaTeX
Developer Tools: Git, Visual Studio Code, Altium Designer, Unreal Engine
Hobbies: Basketball, Jogging, Table tennis