Cui Wenqing

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Education

Harbin Institute of Technology China,Weihai
Undergraduate in Electronic Information Engineering August 2019 – Present
Mentor: Professor Yan
GPA: 87.24/100

Honors and scholarships

Major Award (Top 3% students from my major.) 2020
Excellent Volunteer (by Committee of National Robot Competition) 2021
Outstanding Student Leaders (Top 3% students from all majors.) 2021

Publications

Handwriting Number Recognition Based on Millimeter-wave Radar with Dual-view Feature Fusion Network(Accepted)
Xiang Feng *, Tao liu, **Wenqing Cui**, Fengcong li, Yinan Zhao
Journal of Electronics & Information Technology, 2022, EI.

Radar Waveform Design with Cognitive Local Low Range Sidelobes Based on Particles Swarm Assisted Projection Optimization(Published)
Xiang Feng *, Fengcong Li, **Wenqing Cui**, Zhanfeng Zhao, Yinan Zhao
Remote Sensing, SCI ,JCR Q1.

Robust Phase-coded Waveform Design with Low Range Sidelobes Using Particles Filter Assisted Projection Method(Accepted)
Xiang Feng, Tao Liu, **Wenqing Cui**, Chaolin Zhang,et al.
International Conference on Information Communication and Signal Processing.

Radar composite waveform design with low range sidelobes based on particles sampling projection(Published)
Feng Xiang*, Li Fengcong, Fan Yu, Liu Tao, **Cui Wenqing**,et al.
Systems Engineering and Electronics, 2022, EI.

Research experience

JPEG Image Compression System(on MATLAB)
Mentors: Professor Yu Jun 2022 – Jul 2022
Details:This project makes an image compression system based on the JPEG compression standard. The image is firstly segmented, then DCT transformed, and then quantized according to the given quantization table. The DC component is differentially encoded, the AC component is run-length encoded, and the data is then Huffman encoded.

Voice change processing system(on MATLAB)
Mentors: Professor Zhao Jun 2022 – Jul 2022

Details:Since the characteristics of human voice are mainly related to the fundamental frequency and the formant frequency, these two parameters are mainly changed when changing the voice. We use the short-term autocorrelation method to estimate the pitch period, and extract the formants by the linear predictive coding cepstral method to change the timbre characteristics.

Digital Down-Conversion and Pulse Compression Based on Polynomial Filtering(on FPGA)
Mentors: Professor Qi Mar 2022 – Jun 2022
Details:Different from the traditional digital down-conversion method of mixing frequency, the digital down-conversion method based on multinomial filtering has better amplitude and phase consistency. The pulse compression can improve the range resolution accuracy and range resolution of the radar to the target. We simulated digital down-conversion and pulse compression in MATLAB and implemented them on FPGA.

Face recognition based on Machine Learning(on MATLAB)
Mentors: Professor Yu Jun 2021 – Aug 2021
Details:The project was done in two ways. The first approach uses principal component analysis (PCA) to extract feature faces from face sample sets. Fisher Linear Discrimination method is used for face classification and recognition. The second approach uses HOG operator to extract feature faces, and then uses multi-layer feedforward neural network to classify and recognize faces.

UAV pursuit system based on OPENMV
Mentors: Dr.Zhang Dec 2020 – Sep 2021
Details:First, I built a quadrotor UAV based on Pixhawk flight control hardware. The UAV uses mini lidar and Optical Flow sensor to determine altitude and stabilize its position. Then I run hough circle transformation algorithm on OPENMV hardware to determine the position of the circular target. After the position of the target is calculated, it is sent to Pixhawk through serial communication to control the movement of the UAV towards the target. A negative feedback closed-loop control is designed to make the UAV hover over the target.

Skills

Programming
Proficient in: Matlab, C,LaTeX.
Familiar with: Verilog, Python.

Languages
English (**C1,IELTS:7.0**(Listening:7.5,Reading:8.5,Writing:6.5,Speaking:6.0))
GRE

Other interests

Basketball, Swimming, Photography, Video games..