Cui Wenqing

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Email: MRC0814@163.com **Homepage**: Dreamaker-MrC **Phone**: +86 135-8115-1114

Education

Harbin Institute of Technology China,Weihai
Undergraduate in **Electronic Information Engineering** 2019 – Present
GPA: 88/100
Selected course grades: Calculus(94/100), Linear Algebra(91/100), Analog Electronics(93/100), Signals and Systems(91/100), Principle of Communication(91/100), Digital Signal Processing(93/100), Antenna Principle(92/100)

Research Interests

mmWave Radar, Radar waveform design, IOT

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**, Peer-reviewed.*

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

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**, Peer-reviewed.*

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.

Research experience

JPEG Image Compression System(on MATLAB)
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**.This system will eventually output the compressed image and calculate the compression ratio.

Voice change processing system(on MATLAB)

Details:According to the short-term stationarity of the speech signal, the collected speech signal is processed frame by frame, the prediction coefficient is calculated by the **linear prediction method (LPC)**, and the gene cycle is changed to achieve different voice changing effects. And compiled a **GUI** interface to integrate audio acquisition, spectrum analysis, voice-changing processing functions, and finally realized the voice-changing effects of children's voices, female voices, sloth voices, etc.

Digital Down-Conversion and Pulse Compression Based on Polynomial Filtering(on FPGA)
Details:This project uses the **digital down-conversion technology based on polynomial filters** to down-convert the radar detection echoes of two targets, and then uses a **matched filter** to perform **pulse compression** processing on the signals. This process is verified by simulation on **Matlab, Quartus II** and other software, and implemented in **Altera Cyclone V FPGA**.

Face recognition based on Machine Learning(on MATLAB)
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
Details:Use **PIXHAWK** flight control hardware to build a four-axis UAV experimental platform. The UAV uses **mini lidar** and **Optical Flow sensor** to determine altitude and stabilize its position. The **Hough circle change algorithm** is used to identify the position of a specific shape, and a **negative feedback control** system is used to make the UAV hover over the specified target to achieve the function of tracking the target.

Honors and scholarships

First Grade Scholarship (Intra-Shool,this award is awarded to the **Top 3**% of students to represent their outstanding academic performance.) 2020
Excellent Volunteer (**National**, awarded by Committee of National Robot Competition for outstanding volunteer service) 2021
Outstanding Student Leader (Intra-Shool, this award is awarded to the **Top 3**% students from all majors for outstanding leadership.) 2021
Merit and Ability Scholarship (Intra-Shool,Highly competitive,**Top 0.2**% students from all majors.) 2022

Skills

Programming :Matlab, C, LaTeX, Verilog, Python.
Languages :Mandarin (native), English (**C1,IELTS:7.0**)