LIWEI FENG

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PERSONAL HIGHLIGHTS

- Keen learner enthusiastic about Communication Engineering
- Diligent and highly self-disciplined
- Strong self-learning ability and also a team-player

EDUCATION

Civil Aviation University of China, Tianjin, China September 2016 – June 2020

- Major: Telecommunication Engineering, College of Electronic Information and Automation
- Degree: Bachelor of Engineering
- GPA: 4.0

University of Alberta, Edmonton, Canada September 2021 – Present

- Major: Communications, Electrical and Computer Engineering
- Degree: Master of Engineering
- GPA: 3.9

INTERNSHIP EXPERIENCE

Internship in Northwest Air Traffic Control Bureau July 2019

- Learned about duties and routines of staff in the air traffic control bureau
- Learned about radar surveillance, communication, automation, navigation and power supply used in civil aviation and their principles of operation
- Maintained the air traffic network safety in the network center

ACADEMIC EXPERIENCE

Project: Wireless Communication Through Reconfiguration Intelligent Surfaces 2022 - present

- Simulate the working process of Reconfiguration Intelligent Surfaces under uncontrollable interactions of the transmitted radio waves with surrounding objects
- Explain how Reconfiguration Intelligent Surfaces control the scattering, reflection, and refraction characteristics of the radio waves to improve the quality of received signal
- Analyze the potential uses in 6G and beyond wireless networks

Project: Language Grounded Generations of 3D Visual Behaviors 2022 - present

- Given the action category as inputs, try to synthesize 3D visual behaviors
- Inspired by the current VAE model, use a new approach, VQ-VAE and Transformer to realize the generation of 3D human motion

Project: Object Tracking in Video with SiamFC model based on MindSpore 2022

- Based on the current Pytorch framework, reproduced the object tracking on MindSpore platform to simplify training process and improve the training speed
- For pretraining part, generated a pair of images suitable for training from samples in the required dataset
- For training part, used SiamFC model and dataset GOT-10k to get feature map and score map for matching similarity between initial appearance of the aimed object and object in videos
- For testing part, used dataset VOT2018 to test the model SiamFC and calculated accuracy.

Project: Data Analysis and Knowledge Discovery based on R 2021

- Predicted the assessed value of a house based on a dataset in Edmonton Open Property Assessment Data using linear regression, polynomial regression, splines, bootstrap and best subset selection
- Predicted the increase or decrease of the assessed value of a house from year 2015 to year 2016 using logistic regression and support vector machine

Project: Digital Communication based on Matlab 2021

- Encoded and decoded a message using Huffman Code
- Simulated binary communication using orthogonal signals in AWGN channel
- Simulated 16-QAM modulation and detection
- Simulated the effect of ISI according to eye diagram

Project: Bird Flight Dynamic Simulation & Micro-Doppler Feature Enhancement 2019 – 2020

- Established the bird's dynamic flapping wing model and the corresponding radar echo model based on the bird's structure and flight characteristics
- Extracted the micro-Doppler features of birds from radar echo signals using time-frequency analysis, such as Short-Time Fourier Transform (STFT)
- Enhanced the micro-Doppler features of birds using the algorithm called Alternating Direction Method of Multipliers (ADMM) to improve the problems like low signal-to-noise ratio and low sampling rate
- Prepared the code(Matlab) and thesis

Project: Spherical Robot 2018 – 2019

- Designed the overall structure and chose proper weight, size and materials for the robot
- Designed the circuit of the robot using MCU, A4950, gyroscope and Zigbee
- Created Printed Circuit Boards of robot using protel
- Prepared a user manual, an article and a patent application

Project: Signal mixing and filtering based on DSP 2019

- Generated two different signals and mixed them together(A/D)
- Filtered the signal with higher frequency and outputted the low-frequency signal(D/A)

Project: Music Running Light based on FPGA 2018

- Designed the distribution of lights based on the tone of music
- Wrote the code based on Verilog

SKILLS

- Languages: English, Chinese
- Programming Languages: JavaScript, Matlab, R, C, python,Rust, HTML, CSS, ES6
- Software: SPSS, 3DS MAX, Quartus, Keil, protégé, R studio, Protel

EXTRACURRICULAR ACTIVITIES

Volunteer Club of CAUC 2017-2018

- President of the club
- Organizer of a series of volunteer events (animal protection events, paper airplane coloring event, visiting program for seniors)

College of Electronic Information and Automation Volunteer Association 2017-2018

- Visiting MingQiang Special School to help children with autism and learning disabilities