Huijun Han

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EDUCATIONAL BACKGROUND

Southeast University , School of Instrument Science and Engineering, Measuring Control Technology and Instrument, *Bachelor of Engineering*   2017.9 - 2021.6

- Average score: 89.97, GPA: 3.87/4, Ranking:1/92
- Outstanding Student of Southeast University (Top 3% in the university)
- Outstanding Graduate of Southeast University (Top 5% in the university)
- Principal's Scholarship

WORKING EXPERIENCE

AI-based Orthodontics Surgery Planning, Research Assistant II in Faculty of Dentistry   2021.12 - 2022.8

- *Description*: Orthodontic patients are eager to know the appearance differences for different surgery plannings. If there is a system capable of making prediction based on surgery's plan, it can eliminate the communication barrier between patients and doctors.
- *My Duty*: Following pre-processing 3D scans and dense correspondence, paired pre- and post- surgery 3D meshes are used to train a fully-connected machine learning network.
- *Achievement*: A robust Multi Layer Perceptron network to predict human faces after surgery.

RESEARCH EXPERIENCES

Identifying buildings in remote sensing images using machine learning , Graduation Design 2021.1 - 2021.6

- *Description*: In the problem of using machine learning to perform detection of land building changes, the current remote sensing image processing methods cannot detect the edges of building changes. In my graduation design, I have investigated an improved method for a model used to perform land building change detection.
- *My Duty*: Based on the DeepLab V3+ semantic segmentation model, the network model is improved so that it can more fully utilize the features extracted by the backbone network to fuse information of different resolutions.
- *Achievement*: The detection capability of the existing network for building edges has been improved to achieve higher accuracy. Excellent Graduation Design (top 15%).

Improving symbol detection algorithm, LEADS Subject Group   2019.5 - 2019.10

- *Description*: In multiple-input multiple-output multi-antenna wireless systems, how to recover the transmitted signal at the receiver side is called the symbol detection problem. The traditional symbol detection algorithms mainly include linear least squares estimation, depth-first search, etc. In this research, we introduce expectation propagation algorithm and Bayesian estimation theory to solve the symbol detection problem, and complete the hardware implementation of the algorithm to improve the detection accuracy and reduce the complexity of the algorithm.
- *My Duty*: Study on improving the expectation propagation algorithm and introducing convergence factor and early stop mechanism.
- *Achievement*: Published paper Approximate Expectation Propagation Massive MIMO Detector with Weighted Neumann Series in IEEE TCAS-II as second author.

Sound signal recovery, LEADS Subject Group   2019.1 - 2019.3

- *Description*: Multi-rotor UAV in the search and rescue of earthquake trapped people, can collect multi-channel sound signals, which contains faint human voice, larger motor sound and wind sound, etc.. It is necessary to use the existing multi-channel sound signals to determine whether human voices are present, and if so, to locate the azimuth of the trapped person relative to the UAV.
- *My Duty*: Adding Kalman filtering algorithm to the recovery algorithm and writing part of the paper.
- *Achievement*: In the 2019 IEEE Signal Processing Competition, our team won 9th in the world.