# Di An

Baltimore, MD, USA | andykk9912@gmail.com | 213-421-6520

## EDUCATION

**Johns Hopkins University , MD, USA**, PhD, Electrical and Computer Engineering Aug 2023 – Now

- **Core Courses:** Compressed Sensing, Random Signal Analysis, Matrix Analysis, Random Matrix Analysis, Optimization in Data Science, Convex Optimization, Deep Learning, Machine Intelligence.

**University of Southern California (USC), CA, USA**, MS, Electrical Engineer Aug 2021 – May 2023
(Machine Learning and Data Science), Awarded as **Honor MS student**

- **Core Courses:** Linear Algebra, Probability, Computing Principle, Machine Learning-Supervised Learning, Digital Signal Processing, Random Processes, Optimization for the Information and Data Science.

**Xi'an Jiaotong University (XJTU), Xi'an, China**, BS, Automation Sep 2016 – May 2020

- **Core Courses:** Digital Signal Processing, Image Processing, Data Mining, Operations Research, Network Information, Complex Analysis, Discrete Mathematics, Advanced Mathematics, Control System

## Research Experience

**Optics Image Reconstruction** May 2024 – Now
Johns Hopkins University, Supervisor: Prof. Trac D.Tran & Prof. Mark Foster

- Using ElasticnNet to estimate the sensing matrix without calibration and reconstructed the image through OMP.
- Trained modified ViT model for reconstruction task also and found improved performance using new estimator.
- Combining the previous method together to make more reliable reconstruction result.
- Paper on going.

**Noise Backpropagation through Nonlinear Reconstruction** May 2022 – May 2023
University of Southern California, Supervisor: Associate Prof. Justin P. Haldar

- Raised the idea there could be hidden noise in the standard dataset
- Came up with new estimator of non-central chi distribution's estimator to train different Neural Network
- Trained different neural network and found improved performance using new estimator.

**3D Point Cloud Module Robustness** Jan 2022 – June 2022
Arizona State University , Supervisor: Associate Prof. Chaowei Xiao

- Ran GAN based, Fusion based and other data augmentation methods on ModelNet40-c.
- Found the weak point of the model using adversarial training method and improved model's robustness
- Improved robustness for model on 3D point cloud data.

**Summer Program: Tele-Robot & Deep-Learning** June 2019 – Sep 2019
National University of Singapore , Supervisor: Associate Prof. SOO Yuen Jien

- Used Raspberry Pi and Arduino commuting each other, together controlling the tele-robot.
- Implemented the SLAM into the tele-robot to achieve mapping ability.
- Used CNN to train the network for tele-robot to recognize the barriers on the ground.

## Publications

**The "hidden noise" problem in MR image reconstruction** March 2024
Jiayang Wang, ***Di An***, Justin P. Haldar
10.1002/mrm.30100

## Technologies

**Programming Languages:** C, C++, Python, MATLAB, SPSS, TensorFlow, Cuda, Pytorch

**Technologies:** Git, Docker, Xshell, WireShark