

# Yuyang Hu

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## BIOGRAPHY

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I am a **second-year master** student at the Department of Electrical and System Engineering, **Washington University in St. Louis (Wash U)**, working under the supervision of **Dr. Ulugbek Kamilov**. My research goal is to develop fast, efficient, and interpretable algorithms for solving large-scale image problems. My recent work is focusing on parallel image reconstruction and large-scale optimization.

**Research Interests:** Computational Imaging, Parallel Image, Optimization, Deep Learning

## EDUCATION

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<b>Washington University in St. Louis, St. Louis, MO</b> M.S. in Electrical Engineering Advisor: Prof. Ulugbek Kamilov	Aug. 2020 – Expected 2022 GPA: 4.0/4.0
<b>Nanjing Tech University, Nanjing, China</b> B.S. in Electronic and Information Engineering Advisor: Prof. Yaping Bao	Sep. 2016 – Jun. 2020 GPA: 3.79/4.0
<b>Soochow University, Suzhou, China</b> Summer Research Assistant Advisor: Prof. Xinjian Chen	Jun. 2019 – Sep. 2019

## AWARDS

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- NJTECH U Outstanding Graduate (top 2%), 2020
- NJTECH U First-Class Scholarship (top 5%), 2016-2017, 2017-2018, 2018-2019
- WUSTL Dean's Select PhD Fellowship, 2021

## RESEARCH EXPERIENCE

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- **Reconstruction for Parallel Image Without Groundtruth (WashU CIG)**
  - Used deep learning for joint parallel image reconstruction and coil sensitivity calibration without using the ground-truth images [1].
- **ASYNCR Regularization by Denoising (RED) with unbounded delay (WashU CIG)**
  - Proposed asynchronous parallel settings (with unbounded delay) where a cluster of processors is considered, which simultaneously implements stochastic gradients and block-coordinate decomposition to image recovery tasks.
- **Deep Learning for Medical Imaging Segmentation (Soochow U MIPAV Lab)**
  - First assisted in judging the types of retinal diseases in OCT images, and label the lesion areas and disease types for about 3,000 images.

- Coded the data processing module for our own dataset.
- Coded the testing program for different baseline models to evaluate our performance.

## PUBLICATIONS

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**Pre-print:** (*\*' indicates equal contribution*)

- [1] **Y. Hu**, J. Liu, X. Xu, and U. S. Kamilov, “Monotonically Convergent Regularization by Denoising.” arXiv:2203.00137, **preprint**, 2022

**Published:** (*\*' indicates equal contribution*)

- [b 1.] **Y. Hu\***, W. Gan\*, C. Eldeniz, J. Liu, Y. Chen, H. An, and U. S. Kamilov, “SS-JIRCS: Self-Supervised Joint Image Reconstruction and Coil Sensitivity Calibration in Parallel MRI without Ground Truth,” **Proc. IEEE Int. Conf. Comp. Vis. Workshops (ICCVW 2021)**(Oct 11-17), pp. 4048-4056.

## TEACHING SERVICE

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**As Course Grader:**

- ESE 417 Introduction to Machine Learning and Pattern Classification, Wash U. 2021 Fall.
- ESE 415 Optimization, Wash U. 2022 Spring.