YUFENG GU

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EDUCATION

Zhejiang University, Hangzhou, China *Sept. 2016 – June 2020*

- **B.Eng.** at College of Information Science and Electronic Engineering (expected)
- **Major**: Information Engineering **Minor**: Advanced Honor Class of Engineering Education (Honor)
- **GPA**: **3.97/4.00**, **89.66/100** **Ranking**: **7/313** (**2%** in Department) **6/138** (**5%** in Major)

RESEARCH EXPERIENCE

Image Processing and Analysis Group (IPAG) Supervisor: Prof. James Duncan **Yale University, CT, USA**

- Interpretation on ASD with fMRI and Deep Learning Models *Nov. 2019 – Mar. 2020*
  - Applied Long Short-Term Memory (LSTM) – Variational Autoencoder (VAE) on ASD classification.
  - Built multi-layer perceptron (MLP) models for brain fMRI classification with federated learning strategy.
  - Used differential privacy and kept different datasets locally for privacy protection.

Parallel Systems Architecture Lab (PARSA) Supervisor: Prof. Babak Falsafi **EPFL, Switzerland**

- QFlex Simulator *July. 2019*
  - Build CMake compilation for QFlex simulator
  - Patch for GCC-8, Boost Library and Travis-CI code formatting test
- Optimization on Activation Functions for DNN Accelerator *Aug. 2019 – Sept. 2019*
  - Applied custom activation functions on both forward training and inference in LSTM Network.
  - Optimized hyperbolic tangent and sigmoid with second-order polynomial approximations and lookup table for both forward computation and backpropagation.
  - Designed digital implementation of corresponding activation functions in Verilog HDL.

Media DSP Lab, Supervisor: Prof. Peng Liu **Zhejiang University, China**

- Hardware Acceleration for CNN Based on Systolic Array Structure *Nov. 2018 – Apr. 2019*
  - Designed algorithms that support high degrees of concurrency to implement Convolutional Neural Network (CNN) with 2D systolic array structure and corresponding digital implementation.

PUBLICATIONS

- Xiaoxiao Li, **Yufeng Gu**, Nicha Dvornek, James S. Duncan. Boosting Multi-site fMRI Analysis Using Privacy-preserving Federated Learning. Abstract to appear on *Organization for Human Brain Mapping Annual Meeting (OHBM), 2020.*
- Xiaoxiao Li, **Yufeng Gu**, Nicha Dvornek, Lawrence Staib, Pamela Ventola, James S. Duncan. Multi-site fMRI Analysis Using Privacy-preserving Federated Learning and Domain Adaptation: ABIDE Results. Submitted to *Medical Image Analysis*. https://arxiv.org/abs/2001.05647

HONOURS & SCHOLARSHIPS

Fellowship of Summer@EPFL (**2%** applicants awarded) *July 2019*
Tang Lixin Fellowship (**40/24,000** Bachelor students at Zhejiang University) *Nov. 2017, 2018, 2019*
First-Class Scholarship for Outstanding Students (**2%** students awarded) *Oct. 2017*
Zhejiang Provincial Government Scholarship (**3%** students awarded) *Oct. 2017, 2019*
Outstanding Student Leaders in Zhejiang University (**3%** students awarded) *Oct. 2017, 2019*
Honorable Mention in Mathematical Contest in Modeling (MCM) *Feb. 2018*

SERVICES & ACTIVITIES

Assistant in Office of Undergraduate Study *Sep. 2018 – Jan. 2019*
Full–time voluntary teacher in Tuanlin Primary School, Guizhou *July 2017 – Aug. 2017*
Member of Student Union of Lantian Community *Sep. 2016 – June 2017*
Full–time swimming coach for primary school students *June 2016 – Aug. 2016*

SKILLS

English Test: TOEFL 103 (R29/ L26/ S21/ W27), GRE 321 (V151/ Q170/ AW4.0)
Programming Language: Python, C/C++, Linux Bash, MATLAB, Verilog HDL.
Development Skills: Pytorch, TensorFlow, Modelsim, Vivado, Latex.
Other Skills: Swimming, Badminton, Table Tennis, Chinese Calligraphy, Guitar.