

Yufeng Gu

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EDUCATION

University of Michigan

Ph.D. Student, Computer Science and Engineering Department
Advisor: Prof. Reetuparna Das, GPA: 3.88/4.00

Ann Arbor, MI, USA

Sep. 2020 - Aug. 2025

Zhejiang University (ZJU)

B.Eng., College of Information Science and Electronic Engineering
GPA: 3.96/4.00

Hangzhou, China

Sep. 2016 - June 2020

EXPERIENCE

University of Michigan

Research assistant, Advisor: Prof. Reetuparna Das

Ann Arbor, MI, USA

Sep. 2020 - Present

GenomicsBench

- Collected time consuming kernels from commonly used genomics secondary analysis pipeline.
- Analyzed instruction and memory access characteristics of genomics kernels.

Genomics Accelerator

Yale University

Student Intern, Advisor: Prof. James Duncan

New Heaven, CT, USA

Nov. 2019 - Mar. 2020

Interpretation on ASD with fMRI and Deep Learning Models

- Used LSTM-VAE to extract features from Regions of Interests (ROIs) in fMRI.
- Applied graph neural network on interpreting ASD Biomarkers and classification.
- Applied privacy-preserving federated learning framework on multi-site fMRI analysis.

École Polytechnique Fédérale De Lausanne (EPFL)

Student Intern, Advisor: Prof. Babak Falsafi

Lausanne, Switzerland

July 2019 - Sep. 2019

QFlex Simulator

- Build CMake compilation for QFlex simulator.
- Patch for GCC-8, Boost Library and Travis-CI code formatting test.

Activation Function Optimization for DNN Accelerator

- Applied custom activation functions on both training and inference in LSTM Network.
- Optimized activation functions including hyperbolic tangent and Sigmoid with second-order polynomial approximations and lookup table for both forward computation and back-propagation.
- Designed digital implementation of corresponding activation functions in Verilog.

PUBLICATIONS

[1] Arun Subramaniyan, **Yufeng Gu**, Timothy Dunn, Somnath Paul, Md Vasimuddin, Sanchit Misra, David Blaauw, Satish Narayanasamy, and Reetuparna Das. "GenomicsBench: A Benchmark Suite for Genomics." In 2021 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), pp. 1-12. IEEE, 2021.

[2] Xiaoxiao Li, **Yufeng Gu**, Nicha Dvornek, Lawrence H. Staib, Pamela Ventola, and James S. Duncan. "Multi-site fMRI analysis using privacy-preserving federated learning and domain adaptation: ABIDE results." *Medical image analysis* 65: 101765. *IF = 11.148*

[3] Xiaoxiao Li, Yuan Zhou, Nicha C. Dvornek, **Yufeng Gu**, Pamela Ventola, and James S. Duncan. "Efficient Shapley Explanation for Features Importance Estimation Under Uncertainty." In International Conference on Medical Image Computing and Computer-Assisted Intervention, pp. 792-801. Springer, Cham, 2020.

SKILLS

- **English Test:** TOEFL 103 (R29/ L26/ S21/ W27), GRE 321 (V151/ Q170/ AW4.0)
- **Programming Language:** C/C++, Python, Verilog, Linux Bash, MATLAB.
- **Development Skills:** VCS Design Compiler, PyTorch, TensorFlow, ModelSim, Vivado, Latex.
- **Others:** Swimming, Tennis, Badminton, Table Tennis, Chinese Calligraphy.

AWARDS & ACHIEVEMENTS

- Fellowship of Summer@EPFL (2% applicants awarded) *July 2019*
- Tang Lixin Fellowship (60/36,000 students in Zhejiang University) *Nov. 2017, 2018, 2019*
- Outstanding Student Leaders in Zhejiang University (3% students awarded) *Oct. 2017, 2019*
- Honorable Mention in Mathematical Contest in Modeling (MCM) *Feb. 2018*
- Voluntary teacher in Tuanlin Primary School, Guizhou *Aug. 2017*
- First-Class Scholarship for Outstanding Students (2% students awarded) *Oct. 2017*