

MAN-KIT SIT

✉ ansonsit471@gmail.com **in** [linkedin.com/in/mankit-sit](https://www.linkedin.com/in/mankit-sit)

RESEARCH INTERESTS

My research interests lie in the intersection of Large Scale Machine Learning, Distributed Systems and Specialized Accelerators. The current research direction focuses on how to design an automatic and scalable distributed systems to train gigantic machine learning models efficiently.

EDUCATION

The University of Edinburgh, United Kingdom *2021 - Present*

PhD in Computer Science

Advisor: Prof. Luo Mai

Imperial College London, United Kingdom *2018 - 2019*

PhD in Computing (Transferred to the University of Edinburgh)

Advisor: Prof. Wayne Luk

Keio University, Japan *2016 - 2018*

MSc in Engineering

Advisor: Prof. Hideharu Amano

Thesis Topic: Exploiting Multi-level Parallelism on FPGAs using Polyhedral Model

The Chinese University of Hong Kong, Hong Kong *2012 - 2016*

BEng in Computing Engineering

Advisor: Prof. Kin-Hong Wong

WORK EXPERIENCE

City University of Hong Kong, Hong Kong **April 2020 - August 2021**

Research Assistant

Supervised by Dr. Ray Cheung

- ◇ Experience on Verilog HDL, RISC-V ISA, Embedded C Programming
- Developing a hardware secure module for a lightweight RISC-V processor to improve the efficiency of cryptographic operations

IMDEA Software Institute, Spain **Oct 2019 - Mar 2020**

Research Intern

Supervised by Dr. Zsolt Istvan

- ◇ Experience on Vivado HLS, Verilog HDL, Go, AWS
- Evaluating a hardware-efficient distributed consensus protocol in software and developing a hardware prototype of the protocol on FPGAs

Fixstars Corporation, Japan **2017 - 2018**

Part-time Software Engineer & Intern

- ◇ Experience on CUDA, Intel x86 Assembly, Halide
- Implementing a deep neural network model using CUDA on NVIDIA Jetson TX1 for assisting autonomous car driving
- Developing sample applications to demonstrate the use of Halide language to generate hardware circuits on FPGAs for image processing applications

EXTRACURRICULAR ACTIVITIES

ASC Student Supercomputer Challenge

2015 and 2016

- ◇ Experience on MPI, OpenMP, Linux Shell
- Optimising the HPCC benchmark on a small-scale MPI cluster
- Improving the efficiency of a deep neural network model using OpenMP on Intel Xeon Phi
- Being a team leader to manage the team and organise training for newcomers to learn the basic of high performance computing

TECHNICAL SKILLS

Programming Languages	C/C++, Python, Go, Java, MATLAB
Parallel Frameworks	MPI, CUDA, OpenCL, OpenMP
Hardware Development	Verilog HDL, High Level Synthesis (Vivado HLS, OpenCL)
Machine Learning Frameworks	Pytorch, TensorFlow
Other	Linux Shell, Autotools & CMake, Docker

PUBLICATIONS

M. Sit, M. Bravo, Z. Istvan, R. Cheung, "FPGA-based Consensus in Permissioned Blockchains," 4th Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers (SERIAL 2020), 2020.

M. Bravo, Z. Istvan, **M. Sit**, "Towards Improving the Performance of BFT Consensus For Future Permissioned Blockchains," arXiv preprint arXiv:2007.12637.

C. Luo, **M. Sit**, H. Fan, S. Liu, W. Luk, C. Guo, "Towards Efficient Deep Neural Network Training by FPGA-based Batch-level Parallelism," 2019 Annual International Symposium on Field-Programmable Custom Computing Machines (FCCM), 2019.

M. Sit, R. Kazami, H. Amano, "FPGA-based Accelerator for Losslessly Quantized Convolutional Neural Networks," 2017 International Conference on Field-Programmable Technology (FPT), 2017.

T. Okubo, **M. Sit**, H. Amano, R. Takata, R. Sakamoto, M. Kondo, "A Software Development Environment for a Multi-Chip Convolutional Network Accelerator," International Journal of Computer Application, Vol.24, No.2, June 2017.