Xin Su

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EDUCATION

University of Chinese Academy of Sciences	**Shanghai Institute of Microsystem and Information Technology**	**Master of Engineering**
GPA: 3.59/4.0	Microelectronics and Solid-State Electronics	09.2015-05.2019
University of Electronic Science and Technology of China	**Electronic Science and Technology**	**Bachelor of Engineering**
GPA: 3.26/4.0	Microelectronics Technology	09.2011-06.2015

WORKING EXPERIENCE

Shanghai Huawei Technologies Co., Ltd. **Software Engineer** 06.2019-Now

Since June 2022, I began to participate in the open source program named MindSpore and take charge of MindSpore Boost module which is dedicated to the network training acceleration.

The Chinese Academy of Sciences **Research Intern** 02.2017-05.2019

Advisor: Prof. Xing Wei

Working on key manufacture process (layer transfer technology especially H/He co-implantation) development of FD-SOI (Fully Depleted Silicon on Insulator).

RESEARCH INTERESTS

- Cross-disciplinary between AI and Microelectronics
- Neural Networks Training Acceleration
  Involves LessBN, Gradient Freeze, Gradient Accumulation, AdaSum and other algorithms which were applied in MindSpore Boost module. Solve the overflow detection issue using the enhanced mixed precision during the training process, and the engineering problem using the AdaSum algorithm for distributed training.

PUBLICATIONS

[1] **Xin Su**, Nan Gao, Meng Chen, Hongtao Xu, Xing Wei and Zengfeng Di. Silicon-on-insulator with highly uniform top Si fabricated by H/He co-implantation[J]. Chinese Physics letters, 2019, 36(6):068501.

[2] **Xin Su**, Nan Gao, Meng Chen, Hongtao Xu, Xing Wei and Zengfeng Di. Investigation on Evolution of Oxygen Precipitates in Bonded SOI Substrates[J]. ECS Journal of Solid State Science and Technology, 2019, 8(3):186-189.

[3] Yongwei Chang, Xing Wei, Lei Zhu, **Xin Su**, Nan Gao and Yeming Dong. Investigation of Radiation Hardened SOI Wafer Fabricated by Ion-Cut Technique[J]. Nuclear Instruments & Methods in Physics Research, 2018, 426:1-4.

[4] Lei Zhu, Yongwei Chang, Nan Gao, **Xin Su**, Yeming Dong, Lu Fei, Xing Wei and Xi Wang. Resistivity and Radio-frequency Properties of Two-Generation Trap-Rich Silicon-on-Insulator Substrates[J]. Chinese Physics Letters, 2018, 35(4):047302.

[5] Lei Zhu, Yongwei Chang, Nan Gao, **Xin Su**, Yemin Dong, Lu Fei, Xing Wei and Xi Wang. Effects of Low Boron Concentration on Electrical Properties of Commercial Trap-Rich High Resistivity SOI substrate[J]. ECS Journal of Solid State Science and Technology, 2018, 7(2):35-37.

[6] Xing Wei, **Xin Su**, Hongtao Xu, Meng Chen, Nan Gao. Bonding method of semiconductor substrate, and bonded semiconductor substrate[P]. China: CN201811124962, 2020-10-23. US: US20200098703A1.

PROJECT EXPERIENCE

MindSpore Framework Development 06.2022-Now

Responsible for the MindSpore Boost Module

MindSpore is an open-source AI computing framework developed by Huawei. It best matches with Ascend processors and supports multi-processor architectures for all scenarios. In addition, it also covers a lot of AI + scientific computing fields, such as MindQuantum, MindScience, etc.

My recent works are to adapt the enhanced automatic mixed precision (AMP) to ResNet50 based on Ascend 910

when using MindSpore's 'kernel by kernel' mode. The other work currently in progress is the development of a distributed training algorithm named AdaSum (Adaptive Gradient Summation Algorithm).

BetaClub Cloud Platform 12.2020-02.2022

Maintain the stability of the whole BetaClub platform (180+ ECS servers). Responsible for back-end development and dealing with daily affairs.

Migration of the cloud platform from Huawei Intranet to the public cloud (betaclub.nzxcloud.cn) and complete BetaClub redeployment in the EU region. Rectifying and deploying the platform according to local laws, remotely supporting and guiding local foreign colleagues in deployment, operation, and maintenance.

Video Stabilization Evaluation of Flagship Phone 01.2020-12.2020

Participate in the formulation of Huawei video stabilization standards. Participate in the construction of the Huawei video automation test lab.

Construct a dataset on users' video shooting behavioral model, including hand-holding, walking, jogging, fast running, and cycling, based on smartphone sensors, such as gyroscopes and accelerometer. (Android platform)

Video evaluation software development: (1) Develop and integrate three evaluation algorithms such as jitter offset -X and Y directions-, video sharpness, and point light source tremor using Python and OpenCV. (2) Construct video maintenance and debugging system: Add maintenance and debugging dot function in the mobile phone OS layer. Participated in desktop-end software based on QT, which is used to analyze the maintenance and debugging data of videos and photos. (C++, QT)

SCHOLARSHIPS / AWARDS

Bacon Prize – Knowledge is Power	*Corporate Quality Dept., Huawei*	2021
Future Start	*Huawei*	2019, 2020
Consumer BG Hardware Engineering and Product	*Dept. President's Commendation, Huawei*	2020

PROGRAMMING SKILLS

Computer Language:	Java, C++, Python
Framework:	MindSpore, Pytorch, Springboot
Middleware & Other Software:	RabbitMQ, Dubbo, Nginx, ElasticSearch, Kibana, Docker
Morphology Characterization:	SEM, TEM, AFM, SIMS, Raman spectra
Microelectronics Manufacturing Processes:	Ion Implantation, Dry&Wet Etching, Annealing, Doping, Photolithography, Oxidation, Polishing, Grinding, Cleaning, etc.
Qualification Authentication:	Huawei General Software Development Professional - Java Track, DeepLearning.AI Deep Learning Specialization

Practical Software Development Experience on Public Cloud Environment