

YIFEI HUANG

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Experience

SYNOPSYS (Shanghai) Co., Ltd

Apr, 2010 - present

Senior HSPICE Software R&D Engineer (C++), Analog-Mixed-Signal-Group

Maintain and enhance existing HSPICE (the industry golden circuit simulation tool) codes, daily support for customer requests. Works include:

- Circuit matrix stamping and solving support:
Support the circuit list partition and matrix LU partition, element stamping and solving.
- HSPICE simulation run accuracy and speed enhancement:
Support for multi-dimension control for simulator speed tolerance control
- HSPICE circuit net-list input projects:
Using Lex/Yacc for the commands/element statements input.
- Waveform and plain text format signal output files support:
Invoking third-party API for specific format files generating (like PSF and WDF format).
- Transient simulation part codes FORTRAN to C++ reconstitution
2 months' work and 10,000+ lines codes implemented.

2017/05 – 2017/10 Using Machine Learning for Analog circuit recognition project.

- Leader for a group with 3 engineers and 2 interns, responsible for the whole project flow, including member recruiting, data collection, algorithm implementation and final report.
- Use feature extraction + machine learning algorithm (logistic regression, decision tree, neural networks) and final accuracy 87%.
- Use Graph input based Convolution Neural Network + Attention Mechanism, completed end-to-end deep learning procedure. Final accuracy 95%.

2017/07 – 2017/07 Using Clustering Algorithm to Improve QA Regression Testing.

- using function level coverage data as dimension input, do clustering for all the regression cases, and sample a smart regression list from the clustered result.
- reduced the regression sample cases from 30,000+ to 500, significantly reduce regression run time from one day to one hour, remaining high code defect coverage.
- finish the data processing, algorithm proposal, codes implementation and improvement.

2018/02 – 2018/04 Using Machine Learning for Monte Carlo Simulation Speedup

- conventional Monte Carlo simulation requires millions simulation to obtain accuracy result.
- designed and implemented multi-task neural network classifier to a pre-filter for the abnormal cases before final simulation, achieved 100x + performance improvement w/o accuracy loss

PDF Solutions (Shanghai) Co., Ltd

Jul, 2008 - Apr, 2010

Data Analysis Engineer

- Data analysis for IBM 45/32nm advanced silicon process yield ramping project.
Analysis for customer product data, provide yield improvement solutions to make sure process yield significantly improved and reach the client's target.

Education

FUDAN University, School of Microelectronics, Master degree

Sep, 2005-Jun, 2008

FUDAN University, Department of Physics, Bachelor degree

Sep, 2001-Jun, 2005