Siddhartha

Contact Information	7, Woodsvale Condominium, #06-13 Woodlands Drive 72, S738092	065-9857 4171 siddhart005@e.ntu.edu.sg sidmontu.github.io

Research Interests

Embedded Systems Design, FPGA/GPU Computing, Dataflow Computing, Hardware Design, Graph Problems, Numerical Computing, Machine Learning

Education

Nanyang Technological University, Singapore

Ph.D., Embedded Systems Design, *Expected:* Winter 2016

- Current Project Area: *Dataflow Computing Model for Heterogeneous Embedded Coprocessors*
- Advisors: Nachiket Kapre, Assistant Professor

Imperial College London, London, United Kingdom

B.Eng., Electrical & Electronics Engineering, Jun 2012

Research Experience

Research Student — Jan 2013 to present
Centre of High Performance Embedded Systems (CHiPES),
Nanyang Technological University
Supervisor: Nachiket Kapre, Assistant Professor

Research Assistant — June 2012 to Oct. 2012
Circuits & Systems Research Group, EEE,
Imperial College London
Supervisors: Nachiket Kapre, Assistant Professor

Awards

Richard Newton Young Fellow Award, Design Automation Conference — Jun 2013

Programming Skills

Software:

- C/C++, R, Java, Bash, Python, LaTeX, Octave, Javascript, MySQL, and others

Hardware:

- VHDL, Verilog, SystemVerilog, Vivado HLS, CUDA, MaxIDE

Service

Communication Coach, School of Humanities & Social Sciences — Jan 2014 – Nov 2016

- Coaching graduate/undergraduate students on both written & verbal communication skills

References

Nachiket Kapre
Assistant Professor, nachiket@ieee.org
Electrical and Computer Engineering, nachiket.github.io
University of Waterloo, Canada

Publications

March 2017
eBSP: Managing NoC traffic for BSP workloads on the 16-core Adapteva Epiphany-III Processor
Siddhartha, Nachiket Kapre
Design, Automation, and Test in Europe 2017
DOI: Upcoming

October 2016
CaffePresso: An Optimized Library for Deep Learning on Embedded Accelerator-based platforms
Gopalakrishna Hegde, **Siddhartha**, Nachiappan Ramasamy, Nachiket Kapre
International Conference on Compilers, Architecture, and Synthesis for Embedded Systems
DOI: 10.1145/2968455.2968511

August 2016
Vector FPGA Acceleration of 1-D DWT Computations using Sparse Matrix Skeletons
Sidharth Maheshwari, Gourav Modi, **Siddhartha**, Nachiket Kapre
26th IEEE International Conference on Field-Programmable Logic and Applications
DOI: 10.1109/FPL.2016.7577361

May 2016
Communication Optimization for the 16-core Epiphany Floating-Point Processor Array
Siddhartha, Nachiket Kapre
24th IEEE International Symposium on Field-Programmable Custom Computing Machines
DOI: 10.1109/FCCM.2016.15

May 2016
Evaluating Embedded FPGA Accelerators for Deep Learning Applications
Gopalakrishna Hegde, **Siddhartha**, Nachiappan Ramasamy, Vamsi Buddha, Nachiket Kapre
24th IEEE International Symposium on Field-Programmable Custom Computing Machines
DOI: 10.1109/FCCM.2016.14

May 2015
GraphMMU: Memory Management Unit for Sparse Graph Accelerators
Nachiket Kapre, Han Jianglei, Andrew Bean, Pradeep Moorthy, and **Siddhartha**
22nd Reconfigurable Architectures Workshop 2015 (co-located with IPDPS 2015)
DOI: 10.1109/IPDPSW.2015.101

Mar 2015
A Case for Embedded FPGA-based SoCs for Energy-Efficient Acceleration of Graph Problems
Pradeep Moorthy, **Siddhartha**, and Nachiket Kapre
Supercomputing Frontiers 2015
DOI: 10.14529/jsfi150307

Feb 2015 — FPGA Acceleration of Irregular Iterative Computations using Criticality-Aware Dataflow Optimizations
Siddhartha, and Nachiket Kapre
International Symposium on Field-Programmable Gate Arrays
DOI: 10.1145/2684746.2689110

Dec 2014 — Fanout Decomposition Dataflow Optimizations for FPGA-based Sparse LU Factorization
Siddhartha, and Nachiket Kapre
International Conference on Field-Programmable Technology
DOI: 10.1109/FPT.2014.7082787

Sep 2014 — Heterogeneous Dataflow Architectures for FPGA-based Sparse LU Factorization
Siddhartha, and Nachiket Kapre
The International Conference on Field Programmable Logic and Applications
DOI: 10.1109/FPL.2014.6927401

Aug 2014 — Limits of Statically-Scheduled Token Dataflow Processing
Nachiket Kapre, and **Siddhartha**
The International workshop on "Data-Flow Models (DFM) for extreme scale computing"
DOI: 10.1109/DFM.2014.21

May 2014 — Breaking Sequential Dependencies in FPGA-based Sparse LU Factorization
Siddhartha, and Nachiket Kapre
International Symposium on Field Programmable Custom Computing Machines
DOI: 10.1109/FCCM.2014.26