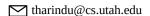
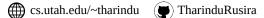
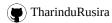
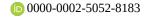
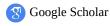
# Tharindu Patabandi











#### **EDUCATION**

# **University of Utah**, Salt Lake City, USA

PhD in Computer Science, GPA 3.9

Fall 2015 – 2022 (expected)

### University of Moratuwa, Sri Lanka

B.Sc.Eng (First-Class honours)

Jul 2010 - Apr 2015

Fall 2015 - 2022

## RESEARCH **EXPERIENCE**

#### **School of Computing**, University of Utah

 Graduate Research Assistant Compiler-driven loop optimization using performance models and high-performance code generation for tensor applications. Both analytical and predictive approaches have been explored for target tensor applications like CNNs. Advisor: Mary Hall

#### Intel Labs, Santa Clara, CA

 Graduate Research Intern (Machine Programming Research) Researched predictive optimizations for data locality optimization of deep loop nest computations. Implemented an MLIR-based compiler infrastructure to accommodate optimization models to drive code generation. Mentors: Anand Venkat, Justin Gottschlich

Summer 2020

Summer 2017

• Graduate Research Intern (Parallel Computing Lab) Developed analytical models to capture cache and memory behavior of CNN operators for high-performance AVX-512 code generation. Mentors: Anand Venkat, Rajkishore Barik

#### **Department of Comp. Sci. & Engineering**, University of Moratuwa

Final Year Research

Apr 2014 – Mar 2015

Developed a search-driven autotuning system to optimize JVM runtime. Advisors: Sanath Jayasena, Saman Amarasinghe

## **TEACHING EXPERIENCE**

#### **School of Computing**, University of Utah

Teaching Assistant

CS 4230 Parallel Programming CS 5470 Compiler Principles and Techniques Spring 2017, Spring 2018

### **Department of Comp. Sci. & Engineering**, University of Moratuwa

Visiting Instructor

Jun 2014 – Aug 2015

CS 1032 Programming Fundamentals, CS 2042 Operating Systems, CS 3042 Database Systems, CS 4522 Advanced Algorithms

### SELECT **PUBLICATIONS**

#### **PAPERS**

- Tharindu Patabandi et. al., Learning data locality optimizations with linear-time training data generation. 2022 (submitted for peer review)
- Tharindu R. Patabandi, Anand Venkat, Abhishek Kulkarni, Pushkar Ratnalikar, Mary Hall, and Justin Gottschlich. Predictive data locality optimization for higher-order tensor computations. In Proceedings of the 5th ACM SIGPLAN International Symposium on Machine Programming (MAPS) 2021.

- Patabandi, T. R., Venkat, A., Barik, R., Hall, M. W. SWIRL++: Evaluating Performance Models to Guide Code Transformation in Convolutional Neural Networks. In Workshops on Languages and Compilers for Parallel Computing (LCPC) 2019.
- Anand Venkat, <u>Tharindu Rusira</u>, Rajkishore Barik, Mary Hall, and Leonard Truong, *SWIRL*: High-performance many-core CPU code generation for deep neural networks. The International Journal of High Performance Computing Applications (IJHPCA) 2019.

#### **POSTERS**

- <u>Tharindu Rusira</u>, Anand Venkat, Rajkishore Barik, and Mary Hall, SWIRL: Automatic High-Performance CPU code generation for Convolutional Neural Networks using Model-based Search, (LCPC) 2018
- <u>Tharindu Rusira</u>, Mary Hall, Leveraging Performance of Geometric Multigrid with Parameter Autotuning, PhD Forum at Parallel and Distributed Processing Symposium (IPDPS), 2016
- Tuowen Zhao, <u>Tharindu Rusira</u>, Kahlid Ahmed, Mary Hall, A Novel Variable-Blocking Representation for Efficient Sparse Matrix-Vector Multiply on GPUs, International Conference for High Performance Computing, Networking, Storage, and Analysis (SC) 2016

# OTHER WORK EXPERIENCE

#### **Google Summer of Code 2014**

Arches Project
 Summer 2014

Zaizi Asia, Colombo, Sri Lanka

■ Software Engineer Intern Nov 2013 – Apr 2014

### GRADUATE COURSEWORK

CS 6150 Advanced Algorithms, CS 6210 Advanced Scientific Computing I, CS 6235 Parallel Programming for Many-Core Architectures, CS 6460 Operating Systems, CS 6810 Computer Architecture, CS 6960 Advanced Compilers, CS 6961 Structured Prediction, CS 6966 Theory of Machine Learning, CS 7960 Neuromorphic Architectures

# TECHNICAL SKILLS

Python, C++, LLVM/MLIR, PyTorch, Vim, LATEX

#### **AWARDS**

<ul> <li>NSF/IEEE-TCPP Student Travel Award (IPDPS'16)</li> </ul>	2016
<ul> <li>Gold Prize, ACM Student Research Competition (CGO undergrad)</li> </ul>	2015
<ul> <li>ACM SIGMICRO Travel Grant (CGO'15)</li> </ul>	2015
<ul> <li>NSF/IEEE-TCPP Student Travel Award (IPDPS'15)</li> </ul>	2015
<ul> <li>Dean's List, Faculty of Engineering, University of Moratuwa</li> </ul>	2012 - 2015

#### REFERENCES

Available upon request