

VIMUTH FERNANDO

vimuth.github.io

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RESEARCH INTERESTS

Programming languages, program analysis, and software engineering.

EDUCATION

PhD, Computer Science

August 2016 - August 2022

University of Illinois at Urbana Champaign, Urbana, IL, USA

Advisor: Prof. Sasa Misailovic

Thesis: “*Programming Systems for Safe and Accurate Parallel Programs in the Presence of Uncertainty*”

MSc, Computer Science and Engineering

August 2015 - August 2016

University of Moratuwa, Katubedda, Sri Lanka

Advisor: Prof. Sanath Jayasena

Thesis: “*Autotuning Multi-tiered Applications for Performance*”

BSc, Computer Science and Engineering

August 2010 - August 2015

First Class

University of Moratuwa, Katubedda, Sri Lanka

PUBLICATIONS

Vimuth Fernando, Keyur Joshi, Sasa Misailovic, Diamont: Dynamic Monitoring of Uncertainty for Distributed Asynchronous Programs, *The 21st International Conference on Runtime Verification (RV)*, 2021 (Invited to a special issue of the *International Journal on Software Tools for Technology Transfer*)

Suraj Jog, Zikun Liu, Antonio Franques, **Vimuth Fernando**, Sergi Abadal, Josep Torrellas, Haitham Hassanieh, One Protocol to Rule Them All: Deep Reinforcement Learning Aided MAC for Wireless Network-on-Chips, *18th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2021

Antonio Franques. Apostolos Kokolis, Sergi Abadal, **Vimuth Fernando**, Sasa Misailovic, Josep Torrellas, WiDir: A Wireless-Enabled Directory Cache Coherence Protocol, *27th IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, 2021

Keyur Joshi, **Vimuth Fernando**, Sasa Misailovic, Aloe: Verifying Reliability of Approximate Programs in the Presence of Recovery Mechanisms, *International Symposium on Code Generation and Optimization (CGO)*, 2020

Vimuth Fernando, Keyur Joshi, Sasa Misailovic, Verifying Safety and Accuracy of Approximate Parallel Programs via Canonical Sequentialization, *34th ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA/SPLASH)*, 2019

Vimuth Fernando, Keyur Joshi, Darko Marinov, Sasa Misailovic, Identifying Optimal Parameters for Randomized Approximate Algorithms, *Workshop on Approximate Computing Across the Stack (WAX) (Collocated with PLDI)*, 2019

Farah Hariri, August Shi, **Vimuth Fernando**, Suleman Mahmood, Darko Marinov, Comparing Mutation Testing at the Levels of Source Code and Compiler Intermediate Representation, *12th IEEE International Conference on Software Testing, Verification and Validation (ICST)*, 2019

Keyur Joshi, **Vimuth Fernando**, Sasa Misailovic, Algorithmic Profiling for Randomized Approximate Programs, *41st ACM/IEEE International Conference on Software Engineering (ICSE)*, 2019

Vimuth Fernando, Antonio Franques, Sergi Abadal, Sasa Misailovic, Josep Torrellas, Replica: A Wireless Manycore for Latency-Critical Data, *24th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2019

Vimuth Fernando, Sanath Jayasena, Autotuning Multi-tiered Applications for Performance, *12th IEEE International Conference on Industrial and Information Systems (ICIIS)*, 2017

Vimuth Fernando, Milinda Fernando, Tharindu Rusira and Sanath Jayasena, Enhancing X10 performance by auto-tuning the managed java back-end, *2016 Sixteenth International Conference on Advances in ICT for Emerging Regions (ICTer)*, 2016

WORK EXPERIENCE

University of Illinois at Urbana Champaign August 2016 - August 2022
Graduate Research Assistant
Advisor: Sasa Misailovic

University of Moratuwa August 2015 - August 2016
Graduate Research Assistant
Advisor: Sanath Jayasena

Google Summer of Code April 2014 - August 2014
Intern
Contributor to Apache Software Foundation
Worked on evaluating and modularizing the build system for Apache Pig

WSO2 Nov 2013 - Feb 2014
Software Engineering Intern
WSO2 Private PaaS Team
Worked on building a centralized logging and metering system for distributed containers

PRESENTATIONS

Guest Lecture: Replica: A Wireless Manycore for Latency-Critical Data, *CS 526 (Advanced Compiler Construction)*, *UIUC, Spring 2019*

Guest Lecture: Verifying Approximate Parallel Programs, *CS 477 (Formal Software Development Methods)*, *UIUC, Spring 2019*

Talk: Verifying Safety and Accuracy of Approximate Parallel Programs via Canonical Sequentialization, *Midwest Programming Languages Summit 2019*

Poster Presentation: Auto-tuning Multi-tiered Applications for Performance, *International Symposium on Code Generation and Optimization 2016 (CGO)*

AWARDS AND ACHIEVEMENTS

ACM SIGPLAN Travel Grants: OOPSLA 2019, Midwest PL Summit 2019, and PLMW at PLDI'17

ACM Student Research Competition: 2nd Runner Up *Graduate Student Category*
International Symposium on Code Generation and Optimization 2016 (CGO)
Autotuning Multi-tiered Applications for Performance, Vimuth Fernando

Prof. V. K. Samaranayake Research Grant: *Awarded by LK Domain Registry, Sri Lanka*

Dean's List for student excellence - *University of Moratuwa 2010, 2011, 2013, 2014*

TEACHING EXPERIENCE

Teaching Assistant: Formal Software Development Methods (CS477)
University of Illinois at Urbana-Champaign
Responsibilities: office hours, class logistics, homework, and exams

Teaching Assistant: Operating Systems (CS2042), Computer Networks (CS 3032), Concurrent Programming (CS4532)
University of Moratuwa
Responsibilities: class logistics, labs, and homework

OTHER EXPERIENCE

Attended Oregon Programming Languages Summer School 2017 (OPLSS'17)

Artifact Evaluation Committee PLDI 2020 and VMCAI 2021

Student Volunteer at SC'15 (The International Conference for High Performance Computing, Networking, Storage and Analysis) Austin, Texas

Co-organized the Brett Daniel Software Engineering Seminar, UIUC, Spring 2019