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EDUCATION

National Institute of Technology,Karnataka, India
Bachelor of Technology, Information Technology, 2012-Present GPA: 9.64/10

Sri Kumaran Children's Home(CBSE), India
All India Senior School Certificate Examination, 2012 Percentage: 97%

PROJECTS

Multiscale multiphysics process on a HPC infrastructure : Application to coral growth process
A project as a part of Summer Internship 2015 in University of Geneva, Switzerland
Mentors: *Prof. Paul Albuquerque , Dr. Jonas Latt*
Developed a simulation model to showcase the growth of a coral and analysed the proformance of the same on a HPC infrastructure (BlueGene/Q supercomputer).The project involved designing of new algorithms to emulate the growth process of a coral along with an advection-diffusion process of the fluid to transport the nutriments(suspended in fluid) to the coral. The model was developed using Palabos and its performance was benchmarked and fine-tuned on BlueGene/Q for different scaling parameters.

A tool to build and compile Definitional Trees
Mentor: *Prof. Sergio Antoy*
As a participant of Google Summer of Code 2015 (GSoC), I worked with Portland State University on a project to automatically and easily construct a definitional tree for set of logic rules.A definitional tree is a hierarchical structure of the rules defining an operation in a program. It is exhaustively used to determine evaluation strategies and compilation techniques. Building a definitional tree by hand is a lengthy and tedious process and hence an automated tool is required for this process.
Project code : https://github.com/karthiksenthil/ruby_curry
Project blog : http://summer.cs.pdx.edu/blog/4182

Multrix: An Automatic Tool for Dynamic Dependence Analysis of Source Codes
A project under HPC Research Group at National Institute of Technology Karnataka
Multrix is an automatic,dynamic and language-independent tool to construct the Node Dependency Matrix(NDM) of an input program using dynamic binary instrumentation techniques. It has been developed using Intel Pin DBI framework. This work has been submitted for review to the IEEE International Conference on High Performance Computing 2015.
Project code : https://github.com/karthiksenthil/multrix

Parsera - A tool to learn/teach parsing algorithms
Mentor: *Prof. V.Krishna Nandivada*
During the summer of 2014, I participated in an interactive learning session at Indian Institute of Technology, Madras, India under guidance of Prof. Krishna. As an outcome of the same I developed an interactive tool named Parsera to teach/learn common parsing algorithms. Currently 3 parsing algorithms namely LALR, LL(1) and SLR have been implemented. Given an input grammar and the type of parser to be built, the tool constructs a parsing table and the states. It also provides a feature to parse input strings using the constructed parsing table.

PUBLICATIONS

Senthil K., S. Bhat K., Jamadagni N., Sureshan S. and Prasad G. (2015). O3 - A Webpage Preprocessing Tool. In Proceedings of the 11th International Conference on Web Information Systems and Technologies, pages 15-20.
http://www.scitepress.org/DigitalLibrary/Link.aspx?doi=10.5220/0005438100150020

O3 was developed as a part of an academic project in the Web Technologies and Applications course. It is an automated tool to identify possible front-end optimizations for a webpage and implement the same. This publication has also been selected to be included in the series "Lecture Notes in Business Information Processing" (LNBIP) published by Springer-Verlag

EXPERIENCE

Google Summer of Code 2014 openSUSE

I was selected for GSoC 2014 as a student contributor and worked on openSUSEs web tool called Travel Support Program. I added features to customize/design the existing workflow for any state machine defined in the application. This would enable the generalization of the tool and hence available to various other organizations for their use.

ACHIEVEMENTS

1. 2008 - NTSE(National Talent Search Examination) Fellowship
2. 2013 - INSPIRE merit scholarship - Awarded to top 1% scorers in All India Senior School Certificate Examination 2012
3. 2014 - Selected as a sponsored scholar to attend RubyConf India 2014(a national level annual Ruby conference)
4. 2015 - Selected as Chairperson of Computer Society SIG of IEEE - NITK student branch

COMPUTER SKILLS

Languages: C, C++, Ruby, Python, Java
Softwares/Libraries: Palabos, OpenCL, PAKCS, Intel Pin DBI framework, Bison & Flex, Git
Web Development: HTML, CSS, JavaScript, Ruby on Rails, PHP
Github Handle : karthiksenthil

OTHER INTERESTS

Capture The Flag contests(Team : No Internet Access), Web development