Aditya Pakki

Contact Information

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Research Interests

High Performance Computing, Exascale computing, Fault tolerance, Scientific Computing, Operating Systems.

Education

University of Utah — **Salt Lake City, UT**
School of Computing, M.S. Computer Science — *Aug,2014 – Aug,2016*
Project: An Efficient Method for Component Failure Resiliency in Uintah. Advisor: Martin Berzins.
GPA: 3.63/4.0[1]

Jawaharlal Nehru Technological University — **Hyderabad, India**
Bachelor of Technology, Information Technology — *Sep,2007 – Jun,2011*
Project: Implementing secure message transmission across MANETs. Advisor: P. Gopalakrishna.
CGPA: 82.34%(ranked 5^{th} out of 130)[2]

Honors and Awards

University of Utah, USA: Graduate Fellowship with tuition waiver, 2014-2015

Lassonde Institute: Winner(5 members) next generation Internet of Things concept design, 2015

JNTU, Hyderabad: graduated first class with distinction in I.T, 2011

JNTU, Hyderabad: Highest scoring undergraduate capstone project, 2011

Technical Reports

B. Peterson, N. Xiao, J. Holmen, S. Chaganti, A. Pakki, J. Schmidt, D. Sunderland, A. Humphrey, M. Berzins. Developing Uintahs Runtime System For Forthcoming Architectures, Subtitled Refereed paper presented at the RESPA 15 Workshop at SuperComputing 2015 Austin Texas, SCI Institute, 2015.

Research Experience

Los Alamos National Laboratory — *Los Alamos, NM*
Graduate Research Assistant, Advisor: Dr. Jozsef Bakosi — *May,2017 - Aug,2017*

As part of the Data Science at Scale summer school, I was tasked with performing data analysis with various fluid dynamics equations solved using the Quinoa Computing Framework. We are exploring the feasibility of using ROOT framework for data analysis as well as explore its visualization capabilities. We compare ROOT with Paraview for large scale simulations.

University of Utah — *Salt Lake City, UT*
Graduate Research Assistant, Advisor: Prof. Martin Berzins — *May,2015 - Aug,2016*

Worked in Scientific Computing and Imaging(SCI) Institute on making simulations resilient to failure within Uintah Computational Framework and scalable at Exascale. To tackle component failures at core and node level, we implemented task re-execution, and data recovery by interpolation of replicated data respectively. Various higher order numerical interpolation techniques were tested and custom fault injection techniques and fault monitoring cases built.

Independent Research, Advisor: Prof. Hari Sundar — *Aug,2014 - Dec,2014*

Worked on parallelizing P3DFFT numerical library by converting corresponding C code into CUDA. Compared various problem sizes for scaling them on to a cluster of low power on chip Tegra TK1

[1] out of 40 credits, CS program requires 30 credits, program of study GPA:3.68
[2] University topper 86.1%. WES eval. GPA 3.95/4.0

GPUs. Studied various methods to perform a trade-off between power consumption and data allocation for compute efficiency.

Academic Projects

Mining supercomputer system logs to identify failure correlation — **Spring 2016**
Joint work with Harshitha Parnandi, Jeff Philips(Instructor) — *CS:6140*
Course: Data Mining

Performance Comparison of mini apps in CUDA & OpenACC — **Spring 2016**
Joint work with Devi Ayyagari, Monomita Poddar, Mary Hall(Instructor) — *CS:6235*
Course: Programming with Multi Core using GPUs

Implemented Sharded Paxos based Key-Value store — **Fall 2015**
work based on MIT 6.824 with Ryan Stutsman(Instructor) — *CS:6963*
Course: Distributed Systems

Parallelizing Radial Basis Function based nearest neighbor search — **Spring 2015**
Joint work with Srivatsa Mudambi, Hari Sundar(Instructor) — *CS:6230*
Course: High Performance Computing

Teaching Experience

University of Utah — Salt Lake City, Utah
Graduate Teaching Assistant — *Aug,2014 - May,2015*

Spring'15: Introduction to Scientific Computing (CS 3200), Instructor: Martin Berzins
Fall'14: Introduction to Object Oriented Programming(CS 1410), Instructor: Joseph Zachary

- Duties include holding biweekly office hours and leading lab sessions of up to 35 students.
- Helped with grading and solving the assignments, midterms and final examination scripts.

Rishi M.S. Institute of Technology for Women — Hyderabad, India
Adjunct Instructor — *Dec,2011 - May,2013*

Courses: Introduction to Java Programming, Operating Systems, and IT Workshop lab in Spring'13, Fall'12, and Spring'12 semesters respectively.

- Instructed undergraduate freshmen and sophomore programming courses.
- Grading lab assignments and set midterm papers.

Professional Experience

Goldman Sachs Inc. — Salt Lake City, UT
Contractor Technology Specialist — *Dec,2016 - May,2017*
Worked on maintaining the production and QA infrastructures are healthy and running.

Automatic Data Processing, LLC — Hyderabad, India
Software Developer — *Aug,2011 - Jun,2014*
Performed database performance tuning, query optimization, and query migrations.

Renaissance Software Technologies — Hyderabad, India
Java Developer Intern — *Mar,2010 - Aug,2010*
Developed mobile game modules in J2ME for a startup company as part of undergrad requirements.

Service

- Graduate Student Advisory Committee, School of Computing, University of Utah, (2015-16)
- Alternative student representative, Univeristy of Utah, (2015 - 2016)
- Class Representative, JNTU, Hyderabad, (2007 - 2011)
- Event Volunteer Coordinator, Automatic Data Processing Inc, (2011 - 2014)

Skills

Languages: C++, Python, C, Java, LaTeX, Bash scripting, SQL, MPI, OpenMP, CUDA.

Tools & Environments: Subversion, Git, Vim, DB/2, Eclipse, MATLAB, GNU Make, GDB, GCC, Visual Studio.

Past Experience: Go, JavaScript, Java Swing Framework, COBOL, XML, JCL.

Natural Language: Proficient in English(TOEFL iBT 110), Hindi, Telugu.