Ashutosh Pattnaik

CONTACT INFORMATION (Office)

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RESEARCH INTERESTS

GPU Architectures, CPU-GPU Heterogeneous Architectures, New Memory Technologies

EDUCATION

The Pennsylvania State University, University Park, PA, USA **Fall 2013 - Present**
Ph.D. Candidate in Computer Science and Engineering,
Advisors: Dr. Chita R. Das & Dr. Mahmut T. Kandemir
Current GPA : 3.76/4.0

National Institute of Technology, Rourkela, India **Fall 2009 - Spring 2013**
Bachelor of Technology (*Hons.*) in Electronics and Instrumentation Engineering
GPA : 9.24/10

WORK EXPERIENCE

AMD Research, Austin, TX — Co-Op Engineer, Manager: John Keaty — **Summer 2015**

Penn State, University Park, PA — Graduate Research Assistant — **Summer 2014-Present**

CURRENT RESEARCH

Understanding the research issues and opportunities involved in near-data computing in GPUs and tackling the issues of co-scheduling data and compute in order to minimize the data movement costs in these GPU systems.

PUBLICATION

Adwait Jog, Onur Kayiran, Tuba Kesten, **Ashutosh Pattnaik**, Evgeny Bolotin, Nilardish Chatterjee, Steve Keckler, Mahmut Kandemir, Chita Das, *Anatomy of GPU Memory System for Multi-Application Execution*, In Proceedings of the 1st International Symposium on Memory Systems **(MEMSYS)**, Washington, D.C., October 2015

Ashutosh Pattnaik, Sharad Agarwal, Subhasis Chand, *A New and Efficient Method for Removal of High Density Salt and Pepper Noise Through Cascade Decision based Filtering Algorithm*, In Proceedings of the 2nd International Conference on Communication, Computing & Security (**ICCCS**), India, 2012

TALKS AND PRESENTATIONS

A New and Efficient Method for Removal of High Density Salt and Pepper Noise Through Cascade Decision based Filtering Algorithm
- ICCCS 2012, India, October 2012

TEACHING EXPERIENCE

Teaching Assistant, CMPEN 431, Introduction to Computer Architecture **Spring 2014**
Teaching Assistant, CMPEN 270, Digital Design: Theory and Practice **Fall 2013**

SKILLS

C/C++, Perl/Bash Scripting, GPGPU-Sim, FabScalar, MATLAB, CACTI, GDB

COURSES @ PENN STATE

Topics in Computer Architecture	Data Structures & Algorithms
Computer Networks	Numerical Computations
Operating System Design	Programming Language Concepts
Approximate Computing	Algorithm Design & Analysis
Compiler Construction	Programming of Many-Core Architectures

COURSE PROJECTS

Evaluating the Energy Cost of Data Movement in GPGPU Applications

- Created micro-benchmarks for evaluating the energy requirements of data movement among the different levels of memory hierarchy in NVIDIA K20m GPU.

Implementation and Scalability Study of HPCG on Many-Core Architectures

- Ported and optimized the HPCG v2.4 code for implementation on Intel Xeon Phi coprocessors.

AMPEG: Flexible Approximate MPEG decoding for handhelds

- Implemented tuneable parameters for approximation in MPEG decoding for power-constraint handheld devices.

UNDERGRADUATE RESEARCH

Undergraduate Thesis, NIT Rourkela, India **Fall 2012 – Spring 2013**

Robotic Arm Control Through Human Arm Movement using Accelerometers

Built a robotic arm to be controlled by using a wearable device

Summer Research Intern, IIT Kharagpur, India **Summer 2012**

Floating-Point and Fixed-Point Implementation of Divide & Conquer SVD Algorithm for Symmetric Tridiagonal Matrices

Implemented fast SVD Algorithm to be used in facial recognition algorithms

Research Intern, DRDO, India **Winter 2011**

Radar Wave Propagation Modeling

Investigated and modeled the effects of different environmental conditions on Radar waves propagation through them

PROFESSIONAL SERVICE AND MEMBERSHIPS

- Student Member of ACM, IEEE, ACM SIGARCH
- On-Behalf Reviewer (Conferences): ISCA, MICRO, HPCA, IPDPS, ICCAD, PPoPP

REFERENCES

References are available on request.