Vishwesh Jatala

Assistant Professor
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Research Interests

Graphics Processing Units (GPUs), Optimizing Compilers for GPU Performance and Energy, Computer Architecture, High-Performance Computing, Source to Source Translators, Parallelization, and GPU Graph Analytics.

Education

Doctor of Philosophy *July 2011 - Dec 2018*
Department of Computer Science & Engineering
Indian Institute of Technology, Kanpur
CPI: 9.0/10
Thesis Advisor: Prof. Amey Karkare

Bachelor of Technology *July 2005 - May 2009*
Department of Computer Science & Engineering
Visvesvaraya National Institute of Technology, Nagpur
CPI: 9.23/10 (**Institute Medal**)

Professional Experience

- Assistant Professor, **IIT Bhilai** *Aug 2020 - Present*
- Postdoctoral Fellow, **University of Texas at Austin** *Jan 2019 - June 2020*
- Research Fellow, **University of Texas at Austin** *May 2018 - Dec 2018*
- Research Intern, **IBM India Research Laboratory** *May 2013 - July 2013*
- Member of Technical Staff, **Oracle India Pvt Ltd** *June 2009 - July 2011*

Publications

1. **A Study of APIs for Graph Analytics Workloads**, Hochan Lee, David Wongy, Loc Hoang, Roshan Dathathri, Gurbinder Gill, **Vishwesh Jatala**, David Kucky, and Keshav Pingali, in IEEE International Symposium on Workload Characterization & Distributed Processing Symposium (**IISWC**), 2020 [To appear].

2. **Vishwesh Jatala**, Roshan Dathathri, Gurbinder Gill, Loc Hoang, V Krishna Nandivada, Keshav Pingali, A Study of Graph Analytics for Massive Datasets on Large-Scale Distributed GPUs, in 34th IEEE International Parallel & Distributed Processing Symposium (**IPDPS**), 2020.

3. Roshan Dathathri, Gurbinder Gill, Loc Hoang, Hoang-Vu Dang, **Vishwesh Jatala**, V Krishna Nandivada, Marc Snir, Keshav Pingali, Gluon-Async: A Bulk-Asynchronous System for Distributed and Heterogeneous Graph Analytics, in ACM/IEEE International Conference on Parallel Architectures and Compilation Techniques (**PACT**), 2019 [**Nominated for Best Paper**].

4. Loc Hoang*, **Vishwesh Jatala***, Xuhao Chen, Udit Agarwal, Roshan Dathathri, Gurbinder Gill, Keshav Pingali, DistTC: High Performance Distributed Triangle Counting, in IEEE High Performance extreme Computing Conference (**HPEC**), 2019. [* Both authors contributed equally] [**Student Innovation Award**].

5. **Vishwesh Jatala**, Jayvant Anantpur, and Amey Karkare, Reducing GPU Register File Energy, in 24th International European Conference on Parallel and Distributed Computing (**Euro-Par**), 2018.

6. **Vishwesh Jatala**, Jayvant Anantpur, and Amey Karkare, GREENER: A Tool for Improving Energy Efficiency of GPU Register File, in High Performance Computing, Data, and Analytics, Student Research Symposium (**HiPC, SRS**), Jaipur, India, 2017 [**Best Poster Award**].

7. **Vishwesh Jatala**, Jayvant Anantpur, and Amey Karkare, Scratchpad Sharing in GPUs, in ACM Transactions on Architecture and Code Optimization (**TACO**), 2017.

8. **Vishwesh Jatala**, Jayvant Anantpur, and Amey Karkare, Improving GPU Performance Through Resource Sharing, 25th Symposium on High-Performance Parallel and Distributed Computing (**HPDC**), Kyoto, Japan, 2016.

9. **Vishwesh Jatala**, Jayvant Anantpur, and Amey Karkare, Resource Sharing for GPUs, Code Generation and Optimization (**CGO**, Poster Track), Barcelona, Spain, 2016.

Articles in Review/Submission

- **Vishwesh Jatala**, Loc Hoang, Roshan Dathathri, Gurbinder Gill, V Krishna Nandivada, Keshav Pingali, An Adaptive Load Balancer For Graph Analytical Applications on GPUs, Arxiv, 2019.

Teaching

1. CS300: Principles of Programming Languages [Jointly with Dr. Subhajit Sidhanta] *July 2020 - Nov 2020*

Awards

1. Recipient of **Student Innovation Award** in HPEC, 2019

2. **Nominated for Best Paper Award** in PACT, 2019

3. Recipient of **Tata Consultancy Services (TCS) Ph.D. Fellowship** from Jan 2014 to June 2018.

4. Recipient of **Best Poster Award** in HiPC, Student Research Symposium, 2017

5. Recipient of **Best Poster Award** in IBM Research Day, IIT Kanpur, 2017

6. Recipient of **Institute Medal** for academic excellence in B.Tech, CSE, VNIT Nagpur, 2009.

7. Awarded **Academic Excellence Prize** for academic excellence in B.Tech, CSE, VNIT Nagpur, 2009.

8. Recipient of **Dr.V.M. Dokras Felicitation Committee Prize** for academic excellence in 3rd year B.Tech, CSE, VNIT Nagpur, 2008.

9. Recipient of **Academic Excellence Prize** for academic excellence in 3rd year B.Tech, CSE, VNIT Nagpur, 2008.

10. Recipient of **Dr.S.G.Ghangrekhar Prize** for excellence in Mathematics in B.Tech, VNIT Nagpur, 2006

Talks/Presentations

- *Scratchpad Sharing in GPUs*, at 12th Inter-Research-Institute Student Seminar in Computer Science (IRISS), Nagpur, Feb 2018.

- *Scratchpad Sharing in GPUs*, CSE Doctoral Symposium, NIIT University, Rajasthan, September 23rd-24th, 2017.

- Poster Presentation on *Resource Sharing for GPUs*, IBM Research Day, IIT Kanpur, April 2017. **[IBM Best Poster Award]**

- *Improving GPU Performance Through Resource Sharing*, 11th Inter-Research-Institute Student Seminar in Computer Science (**IRISS**), Kolkata, Jan 2017.

- Poster Presentation on *Resource Sharing for GPUs*, Technology Day, IIT Kanpur, May 016.

Technical Skills

Open Source Simulators/Tools	GPGPU-Sim, GPU Ocelot, Cetus, GPUWattch
	CACTI, McPAT, Soot, Lex, Yacc, PIN
Programming Languages	C, C++, Java, and Pascal
Assembly Level Languages	PTX and MIPS
Scripting Languages	Perl Script and Shell Script
Parallel Programming	CUDA, OpenMP, and MPI
Network Programming	RPC, RMI, and Sockets
Query Languages	SQL, LINQ, and SPARQL

Professional Service

- Program Committee:

  - **2020:** PPoPP Artifact Evaluation

- Organizing Committee:

  - **2020:** Computer Architecture Winter School (CAWS)

- Reviewer:

  - **2020:** PACT, IPDPS

  - **2019:** PACT

  - **2017:** HIPC SRS, ICCI

  - **2016:** TOPC

- Thesis Evaluation:

  - **2020:** Master thesis of a student at NTNU

  - **2019:** Master thesis of a student at NTNU