

# Vishwesh Jatala

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## Employment

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### Postdoctoral Fellow

*May 2018 - Present*

Oden Institute for Computational Engineering and Sciences  
The University of Texas at Austin  
Supervisor: Prof. Keshav Pingali

## Research Interests

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Computer Architecture (GPU and CPU), Optimizing Compilers for GPU Performance and Energy, High Performance Computing, Source to Source Translators, Parallelization, and GPU Graph Analytics.

## Education

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### 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**)

## Publications

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

- **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.
- **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

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- **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. (**Under Submission**)
- Hohan Lee, Loc Hoang, **Vishwesh Jatala**, Roshan Dathathri, Gurbinder Gill, Keshav Pingali, A Study of Matrix-based APIs for Graph Analytics (**Under Review in PLDI 2020**)

## Academic Achievements

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- Recipient of **Student Innovation Award** in HPEC, 2019
- **Nominated for Best Paper Award** in PACT, 2019
- Recipient of **Tata Consultancy Services (TCS) Ph.D. Fellowship** from Jan 2014 to June 2018.
- Recipient of **Best Poster Award** in HiPC, Student Research Symposium, 2017
- Recipient of **Best Poster Award** in IBM Research Day, IIT Kanpur, 2017
- Recipient of **Institute Medal** for academic excellence in B.Tech, CSE, VNIT Nagpur, 2009.
- Awarded **Academic Excellence Prize** for academic excellence in B.Tech, CSE, VNIT Nagpur, 2009.
- Recipient of **Dr.V.M. Dokras Felicitation Committee Prize** for academic excellence in 3<sup>rd</sup> year B.Tech, CSE, VNIT Nagpur, 2008.
- Recipient of **Academic Excellence Prize** for academic excellence in 3<sup>rd</sup> year B.Tech, CSE, VNIT Nagpur, 2008.
- Recipient of **Dr.S.G.Ghangrekhar Prize** for excellence in Mathematics in B.Tech, VNIT Nagpur, 2006

## Past Work Experience

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- **IBM India Research Laboratory** *May 2013 - July 2013*  
*New Delhi*  
*Research Intern*  
*Project Title:* Reliable Multicast using Software Defined Networking
- **IIT Kanpur** *Aug 2011 - July 2012*  
*Kanpur*  
*System Administrator*  
The project duties involve in resolving departmental network and computer laboratory issues.
- **Oracle India Pvt Ltd** *June 2009 - July 2011*  
*Hyderabad*  
*Member of Technical Staff*  
The aim of our project is to find the security vulnerabilities in a product and provide best possible solutions to make it secure.

## Talks/Presentations

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- *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

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

## Teaching Assistant

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CS738: Advanced Compiler Optimizations	CS335: Compiler Design
CS601: Mathematics for Computer Science	CS220: Introduction to Computer Organization
CS252: Computing Laboratory	CS639: Program Analysis, Verification and Testing
NPTEL: Fundamentals of Database System	CS602: Design and Analysis of Algorithms
Workshop on C Programming & Data Structures	

## Professional Service

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- Reviewer for IPDPS 2020, PACT 2019, HIPC SRS 2017, ICCI 2017, and TOPC 2016
- Member of PPOPP 2020 Artifact Evaluation Committee
- Evaluated master thesis of a student at NTNU: Norwegian University of Science and Technology university

## References

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- Prof. Amey Karkare, Associate Professor, Department of CSE, IIT Kanpur, Kanpur, India.  
Email: karkare@cse.iitk.ac.in, Phone: +91 512 259 7520
- Prof. Keshav Pingali, Professor, Department of CS, The University of Texas at Austin, USA.  
Email: pingali@cs.utexas.edu, Phone: +1 512 232 6567
- Dr. Jayvant Anantpur, Principal Engineer, Mentor Graphics, Portland, USA.  
Email: jayvant.anantpur@gmail.com, Phone: +1 503 410 6637