Vikash Kumar
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RESEARCH INTERESTS

I am broadly interested in Real-Time/Cyber Physical Systems with a particular focus on Worst-Case Execution Time Analysis due to shared resources in multi/many-core processors. My research interests include Networks-on-Chip, Memory controllers, and Cache analysis technique for time-predictable architectures.

EDUCATION

Indian Institute of Science, India,
Pursuing Ph.D, Computaional and Data Sciences , July 2023(Expected) CGPA: 7.3
Deen Dayal Upadhyaya college, Delhi University,
B.Tech, Computer Science and Engineering, June 2017 Percentage: 71.47
Patna Central School, Patna,
Intermediate, June 2013 Percentage: 79.20

PROJECTS

Project One: Worst case per flow delay bound analysis for network elements such as routers and buffers using deterministic network calculus. In this project we model the given architecture mathematically. (Apr'21)

Project Two: Worst case execution time analysis using deep neural networks. In this project we present a novel and interesting approach, which is to use DNN to estimate early worst-case execution time at initial design phases. (Oct'20)

Project Three: Exploring the Multi Application interference in GPUs. When multiple applications are concurrently executed in a GPU, they start interfering at various levels in the memory hierarchy like shared caches, TLB, Main Memory, etc. leading to an under utilization of GPU resources. (Dec'18)

Project Four: Twitter Data Analysis using Hadoop. In this project we collect data using framework like Hive from social site and after processing of the data we visualize the data. For instance, we extract the data of Naredra modi to know the popularity of him in the people. (June'17)

Project Five: Website creation using ASP.NET. In this project we allow a client to login shopping site and then choose the products which he/she wants to buy and then go to the cart (which shows the list of selected item) and then give details of how he/she wants to pay the bill. (May'16)

COMPUTER SKILLS

Languages: C, C++, Java, Python, MATLAB, GO, OpenCL, OpenMP, Cuda, LaTeX.
Machine Learning Tools: PyTorch, Tensorflow.
Web Development: HTML, CSS, JavaScript, ASP.NET.
Applications: Vi/Vim, Eclipse, Visual Studio, Git.
Operating Systems: Unix, Linux, Mac OSX, Windows.

PUBLICATIONS

Deep Neural Network Approach to Estimate Early Worst-Case Execution Time. In proceeding of the IEEE/AIAA 40th Digital Avionics Systems Conference(DASC'21).

GAML: An integrated approach of Genetic Algorithm and Machine Learning for generation of Worst-Case Data.(Under Reveiw in VLSID'22)

INTERESTS

Cricket, Listening Music and Travelling.