

# Diksha Moolchandani

*Diksha.Moolchandani@cse.iitd.ac.in*

EDUCATION	<b>Ph.D. in Computer Science</b> (2016 - Present) <i>Indian Institute of Technology Delhi (IIT Delhi)</i> <i>Advisors: Prof. Smruti Ranjan Sarangi and Prof. Anshul Kumar</i> CGPA: 8.8/10 <b>B.Tech. in Electronics and Communication Engineering</b> (Aug 2011 - May 2015) <i>Indian Institute of Information Technology, Design and Manufacturing, Jabalpur (IIITDM Jabalpur)</i> CGPA: 8.6/10
WORK EXPERIENCE	<ul style="list-style-type: none"><li>• <b>Scholarship with short stay: Ph.D. young researcher</b> (Sep-Nov 2019) <i>Innopolis University, Republic of Tatarstan, Russia</i></li><li>• <b>Project Associate</b> (Jun-Dec 2015) <i>IIT Delhi (Top-ranked institute in Computer Science and Engineering in India)</i></li><li>• <b>Project Based Internship</b> (May-Dec 2014) <i>Bhabha Atomic Research Centre Mumbai (BARC Mumbai)</i></li><li>• <b>Summer Internship</b> (May-Jul 2013) <i>BARC Mumbai</i></li><li>• Summer training in Embedded Systems and Robotics, (May-Jun 2012) <i>BRiCS Simplifix Automation &amp; Solutions Pvt. Ltd., IIT Kanpur</i></li></ul>
RESEARCH SOFTWARE	<b>Tejas Power Pack</b> (Aug-Oct 2017) <i>Advisor: Prof. Smruti Ranjan Sarangi, IIT Delhi</i> <ul style="list-style-type: none"><li>• Power model add-on for Tejas architectural simulator</li><li>• Released under the open source Apache-v2 license <a href="#">here</a></li></ul>
PUBLICATIONS	<b>Performance Prediction for Multi-Application Concurrency on GPUs</b> <b>D. Moolchandani</b> , S. Gupta, A. Kumar, S.R. Sarangi IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), Boston, USA, April 2020 <b>A Machine to Machine framework for the charging of Electric Autonomous Vehicles</b> Z. Elbanna, I. Afanasyev, L.J.P. Araújo, R. Hussain, M. Khazeev, J. Lamptey, M. Mazzara, S. Megha, <b>D. Moolchandani</b> , and D. Strugar The Workshops of the IEEE International Conference on Advanced Information Networking and Applications (WAINA), Caserta, Italy, April 2020 <b>F-LaaS: A Control-Flow-Attack Immune License-as-a-Service Model</b> S. Kumar, <b>D. Moolchandani</b> , T. Ono, and S.R. Sarangi IEEE International Conference on Services Computing (SCC), Milan, Italy, July 2019
SELECTED PROJECTS	<b>Super Resolution Imaging on Reconfigurable Arrays, IIT Delhi</b> (Jun 2015-May 2016) <i>Advisors: Prof. Kolin Paul and Prof. Anshul Kumar, IIT Delhi</i> <ul style="list-style-type: none"><li>• Implemented a Convolutional Neural Network on a Virtex-6 FPGA to convert an SD video to an HD video at real time.</li><li>• Optimizations include computation time reduction by exploiting inherent parallelism, efficient matrix multiplication by using Toeplitz representation and memory footprint reduction by using a rotating buffer instead of a full-size input buffer.</li><li>• Designed a self-defined protocol, partially exploiting the OCP protocol, to fetch image data in parallel from four DDR3 banks.</li></ul> <b>FPGA Cluster based Parallel Architecture for Cryptanalysis, BARC Mumbai</b> <i>Advisor: Mr. Abhishek Bajpai, BARC Mumbai</i> (May-Nov 2014)

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- Developed a network of four Virtex-6 FPGAs that communicated via the MGT protocol.
  - Developed Python and C wrappers for PCIe bus drivers to implement DMA from Linux Kernel Memory to FPGA BRAM space
  - Presented paper at National Workshop on Cryptology 2014 (NWC).

COURSE  
PROJECTS

- Implemented a distributed ledger of transactions using Google GO, IIT Delhi
- Designed a resource-constrained scheduling algorithm to maximize the performance in a system with multi-port memories, IIT Delhi
- Compared the impact of uniform and non-uniform caches on the performance of the processor, IIT Delhi
- Designed and fabricated a hand-held device to aid in sending flood alerts to the people and rescue location to the rescue team, IIITDM Jabalpur

HOBBIES

Yoga, Meditation, Badminton