

EDUCATION	Ph.D. in Computer Science (2016 - Present) <i>Indian Institute of Technology Delhi (IIT Delhi)</i> <i>Advisors: Prof. Smruti Ranjan Sarangi and Prof. Anshul Kumar</i>
	B.Tech. in Electronics and Communication Engineering (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">• Scholarship with short stay: Ph.D. young researcher (Sept.-Nov. 2019) <i>Innopolis University, Republic of Tatarstan, Russia</i>• Project Associate (Jun-Dec 2015) <i>IIT Delhi (Top-ranked institute in Computer Science and Engineering in India)</i>• Project Based Internship (May-Dec 2014) <i>Bhabha Atomic Research Centre Mumbai (BARC Mumbai)</i>• Summer Internship (May-Jul 2013) <i>BARC Mumbai</i>• Summer training in Embedded Systems and Robotics, (May-Jun 2012) <i>BRiCS Simplifix Automation & Solutions Pvt. Ltd., IIT Kanpur</i>
PUBLICATIONS	Game Theory-based Parameter-Tuning for Path Planning of UAVs D. Moolchandani , G. Prathap, I. Afanasyev, A. Kumar, M. Mazzara, and S.R. Sarangi International Conference on VLSI Design 2021 Accelerating CNN Inference on ASICs: A Survey D. Moolchandani , A. Kumar, and S.R. Sarangi Elsevier Journal of Systems Architecture (JSA), Feb. 2021, Vol. 113 VisSched: An Auction based Scheduler for Vision Workloads on Heterogeneous Processors D. Moolchandani , A. Kumar, J.F. Martínez, S.R. Sarangi Full paper accepted in ESWEEK CASES 2020 Published in IEEE International Transactions on Computer-Aided Design of Integrated Circuits and Systems (IEEE TCAD), Nov. 2020, Vol. 39, Issue 11 Performance Prediction for Multi-Application Concurrency on GPUs D. Moolchandani , S. Gupta, A. Kumar, S.R. Sarangi IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS) 2020 A Machine to Machine framework for the charging of Electric Autonomous Vehicles Z. Elbanna, I. Afanasyev, L.J.P. Araújo, R. Hussain, M. Khazeev, J. Lamptey, M. Mazzara, S. Megha, D. Moolchandani , and D. Strugar The Workshops of the IEEE International Conference on Advanced Information Networking and Applications (WAINA) 2020 F-LaaS: A Control-Flow-Attack Immune License-as-a-Service Model S. Kumar, D. Moolchandani , T. Ono, and S.R. Sarangi IEEE International Conference on Services Computing (SCC) 2019
POSTERS	VisSched: An Auction based Scheduler for Vision Workloads on Heterogeneous Processors D. Moolchandani , A. Kumar, J.F. Martínez, S.R. Sarangi Design Automation Conference (DAC) 2020

TALKS &
SEMINARS

- Game Theory-based Parameter-Tuning for Path Planning of UAV (virtually at VLSI Design 2021)
- VisSched: An Auction-based Scheduler for Vision Workloads on Heterogeneous Processors (virtually at IBM Research's flagship event Maitreyee 2020)
- VisSched: An Auction-based Scheduler for Vision Workloads on Heterogeneous Processors (virtually at ESWEEK CASES 2020)
- Performance Prediction for Multi-Application Concurrency on GPUs (virtually at ISPASS 2020)
- VisSched: An Auction-based Scheduler for Vision Workloads on Heterogeneous Processors (virtually at DAC 2020)
- Benchmark Characterization and Optimizations for Path Planning of Drones at Innopolis University, Russia (Nov. 2019)
- Architectural Characterization of Vision Workloads at Innopolis University, Russia (Sept. 2019)
- Architectures for Vision and Image Processing Applications at PhD Symposium CSE IIT Delhi (Dec. 2017)
- Architectures for Vision and Image Processing Applications: Survey and Research Proposal at IIT Delhi, India (Jun. 2017)
- Implementation of FPGA based Communication Network using High Speed PCIe and Multi Gigabit Transceivers at National Workshop on Cryptology (NWC), 2014
- Implementation of FPGA based Communication Network using High Speed PCIe and Multi Gigabit Transceivers at BARC Mumbai (Aug. 2014)

HONORS &
AWARDS

- Invited to attend the 8th Heidelberg Laureate Forum (Sept. 2021)
Heidelberg, Germany
- Fellowship to attend Robotics: Science and Systems (RSS) (Jul. 2021)
virtual event
- Winner of the Technical Blog Competition at IBM Research's flagship event Maitreyee (Oct. 2020)
IBM Research
- Scholarship with short stay: Ph.D. young researcher (Sept.-Nov. 2019)
Innopolis University, Russia

RESEARCH
SOFTWARE

- Tejas Power Pack** (Aug-Oct 2017)
Advisor: Prof. Smruti Ranjan Sarangi, IIT Delhi
- Power model add-on for Tejas architectural simulator
 - Released under the open source Apache-v2 license [here](#)

SELECTED
PROJECTS

- Super Resolution Imaging on Reconfigurable Arrays, IIT Delhi** (Jun 2015-May 2016)
Advisors: Prof. Kolin Paul and Prof. Anshul Kumar, IIT Delhi
- Implemented a Convolutional Neural Network on a Virtex-6 FPGA to convert an SD video to an HD video at real time.
 - 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.
 - Designed a self-defined protocol, partially exploiting the OCP protocol, to fetch image data in parallel from four DDR3 banks.
- FPGA Cluster based Parallel Architecture for Cryptanalysis, BARC Mumbai**
Advisor: Mr. Abhishek Bajpai, BARC Mumbai (May-Nov 2014)
- Developed a network of four Virtex-6 FPGAs that communicated via the MGT protocol.

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- 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