



# Computer Science and Engineering Indian Institute of Technology Kanpur

**57<sup>th</sup> CONVOCATION**

29<sup>th</sup> June 2024

Dept. Convocation Brochure and Head's Report



## **Head of Department**

Dr. Amey Karkare

## **Faculty Members**

Dr. Adithya Vadapalli (AP)  
Dr. Amey Karkare (P)  
Dr. Amitangshu Pal (AP)  
Dr. Angshuman Karmakar (AP)  
Dr. Anil Seth (P)  
Dr. Arnab Bhattacharya (P)  
Dr. Ashutosh Modi (AP)  
Dr. Debadatta Mishra (AP)  
Dr. Debapriya Basu Roy (AP)  
Dr. Hamim Zafar (AP)  
Dr. Indranil Saha (AsP)  
Dr. Mainak Chaudhuri (P)  
Dr. Manindra Agrawal (P)  
Dr. Nisheeth Srivastava (AsP)  
Dr. Nitin Saxena (P)  
Dr. Piyush Rai (AsP)  
Dr. Preeti Malakar (AP)  
Dr. Priyanka Bagade (AP)  
Dr. Purushottam Kar (AsP)  
Dr. Raghunath Tewari (AsP)  
Dr. Rajat Mittal (AsP)  
Dr. Rajat Moona (P)  
Dr. Sandeep Kumar Shukla (P)  
Dr. Sanjeev Saxena (P)  
Dr. Satyadev Nandakumar (AsP)  
Dr. Soumya Dutta (AP)  
Dr. Sruti S Ragavan (AP)  
Dr. Subhajit Roy (AsP)  
Dr. Sumit Ganguly (P)  
Dr. Sunil Simon (AsP)  
Dr. Surender Baswana (P)  
Dr. Sutanu Gayen (AP)  
Dr. Swarnendu Biswas (AP)  
Dr. Urbi Chatterjee (AP)

## **Visiting Faculty Members**

Dr. Arvind Verma (Indiana U.)  
Dr. Gaurav Sharma (TensorTour)  
Dr. Nisheeth Kumar Vishnoi (Yale U.)  
Dr. Prateek Jain (Google Research)

## **Distinguished Visiting Professor**

Dr. Rajesh K Gupta (UCSD)

## **Adjunct Faculty Members**

Dr. Shashank Srivastava  
Dr. Snigdha Chaturvedi  
Dr. Pravesh Kothari

## **Lab Staff Members**

Brajesh Kr Mishra (Sen. Tech. Supt.)  
Nagendra Yadav (Tech. Supt.)  
Saurabh Malhotra (Senior Technician)  
Meeta Bagga (Senior Technician)  
Shweta Sachan (Senior Technician)  
Sheetal Singh (Junior Technician)  
Saurabh Jaiswal (Junior Technician)  
Shivam Jaiswal (Junior Technician)  
Karan Shah (Junior Technician)  
Purushottam Kumar (Jun. Technician)  
Ranjeet Kumar Verma (Jun. Tech.)  
Akash Misra (Project Engineer)  
Ajay Singh (Lab Assistant)  
Sunil Dixit (Lab Assistant)

## **Office Staff Members**

Prashant Kr Sahu (Superintendent)  
Rishi Dixit (Junior Assistant)  
Akshay Katiyar (Junior Assistant)  
Surya Pratap Sharma (Jun. Assistant)  
Deepankar Chandra (Junior Assistant)  
Rajesh Kumar (Dep. Project Manager)

### **Office Staff Members (contd.)**

Amit K. Bharti (Assistant Proj. Man.)  
Pratik Kumar Gupta (Office Assistant)  
Shyama (Attendant)

### **Department Counsellor**

Aradhana Yadav

### **Post Doctoral Fellows**

Dr. Ramesh Yenda  
Dr. Avaneesh Singh  
Dr. Inzemamul Haque  
Dr. Rachit Agarwal  
Dr. Santosh Arvind Adimoolam  
Dr. Shoubhik Chakraborty

### **Former Faculty Members (Regular and Visiting)**

Dr. Adarshpal Pal Sethi  
Dr. Ajai Jain  
Dr. Amitabha Mukerjee  
Dr. Ansuman Banerjee  
Dr. Asish Mukhopadhyay  
Dr. B. Srinivasan  
Dr. Bhaskar Raman  
Dr. Biswabandan Panda  
Dr. C. R. Muthukrishnan  
Dr. Dheeraj Sanghi  
Dr. Gautam Barua  
Dr. H. N. Mahabala  
Dr. H. V. Sahasrabuddhe  
Dr. Harish Karnick  
Dr. Jithin K Sreedharan  
Dr. Kesav Nori  
Dr. Kritika Venkatramani  
Dr. M. S. Krishnamurthy  
Dr. Medha Atre  
Dr. N. Ramasubramanian  
Dr. Nisheeth Kumar Vishnoi  
Dr. Pabitra Mitra

Dr. Pankaj Jalote  
Dr. Phalguni Gupta  
Dr. Philippe Dugerdil  
Dr. Piyush P. Kurur  
Dr. Ponnurangam Kumaraguru  
Dr. Pramod Subramanyan  
Dr. Prateek Jain  
Dr. R. M. K. Sinha  
Dr. R. Shankar  
Dr. Rajiv Sangal  
Dr. Ratan K. Ghosh  
Dr. Sanjay G. Dhande  
Dr. Sanjeev K. Aggarwal  
Dr. Shashank K. Mehta  
Dr. Shashank Singh  
Dr. Somenath Biswas  
Dr. Sumit Gulwani  
Dr. Sunil Gupta  
Dr. Swaprava Nath  
Dr. T. V. Prabhakar  
Dr. Tapas Nayak  
Dr. V. M. Malhotra  
Dr. V. Rajaraman  
Dr. Vinay P. Namboodiri

### **Former Post Doctoral Fellows**

Dr. Ayan Chakraborty  
Dr. Jubin Mitra  
Dr. Kripabandhu Ghosh  
Dr. Mahendra Rathor  
Dr. Mohammad Sultan Alam  
Dr. Oswald C.  
Dr. Prema S  
Dr. Rakesh Ranjan Swain  
Dr. Sankar Narayan Das  
Dr. Zeyu Guo  
Dr. Madhurima Mukhopadhyay  
Dr. Pampa Howladar

## दीक्षान्तोपदेशः

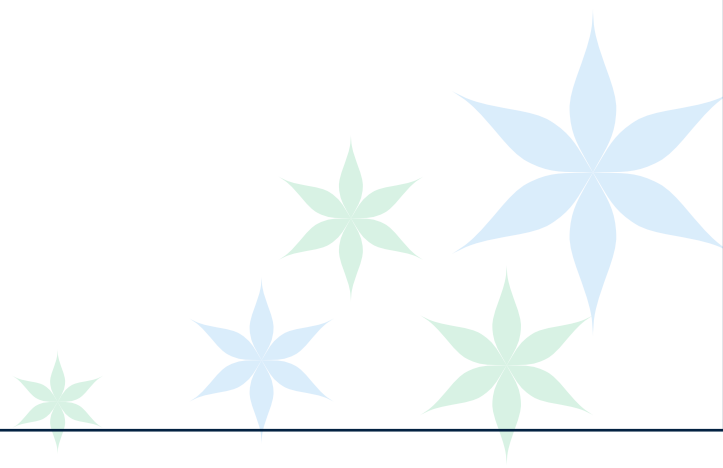
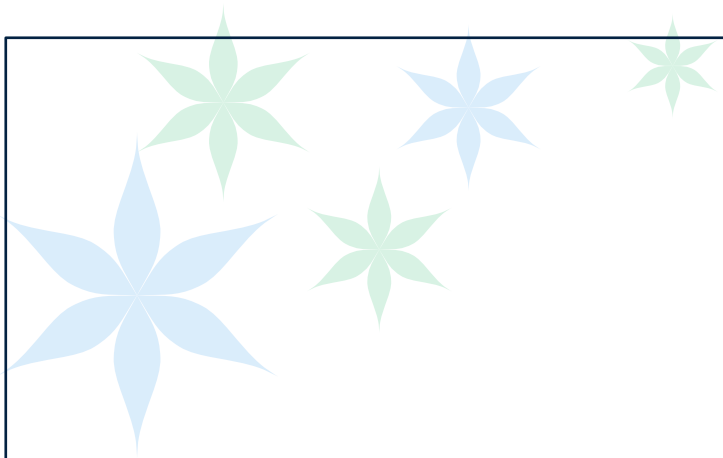
संस्मरन्तु भवन्तः भवदीयमिदं ज्ञानविज्ञानं राष्ट्रस्य पवित्रतमो निधिः । तस्माद् अस्योपयोगः स्वदेशस्य स्वशिक्षणसंस्थानस्य च गौरवानुरूपं सम्यग् विद्यातण्यः । कस्यामपि दशायां भवद्भिः स्वकीया व्यावसायिकी मर्यादा, चारित्रिकी महत्ता च सयत्नं संरक्षणीये । मनसा, वाचा, कर्मणा च सर्वथा लोक कल्याणाय प्रयत्नीयम् । अनुशासनप्रियैः सदा भाव्यम् । स्मर्यताञ्च श्रुतेर्वचनम्

*“यानि अनवद्यानि कर्माणि तानि सेवितव्यानि नो इतराणि ।”*

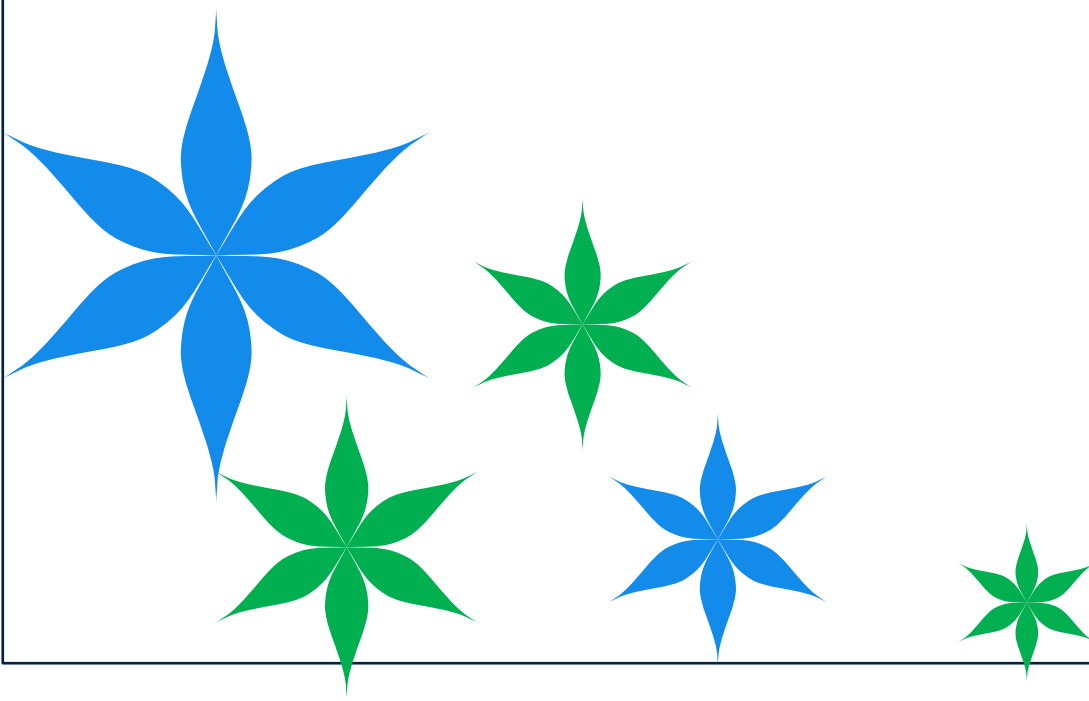
### EXHORTATION

Remember that your knowledge and intellectual attainment is the most sacred wealth of the nation. You shall therefore, use it in a manner befitting the honor and dignity of your country and of your alma mater. You shall make every effort, in all circumstances, to uphold the dignity of your profession and integrity of your character. You shall endeavor, in every way, through thought, word and action, to bring about the well-being of people. You must live a well-disciplined life. Never forget the commandment of the sacred scriptures:

*“Thou shalt perform deeds that are commendable and no others.”*



# Graduating Students 57<sup>th</sup> Convocation 2024



# DOCTOR OF PHILOSOPHY (PhD)

HRISHIKESH RAJESH TERDALKAR (14111265)

Supervisor: Arnab Bhattacharya

Thesis Title: *Sanskrit Knowledge-based Systems: Annotation and Computational Tools*

SHUBHANGI AGARWAL (14111268)

Supervisor: Arnab Bhattacharya

Thesis Title: *Subgraph Matching and Mining in Large Graphs*

KRANTI KUMAR PARIDA (15511266)

Supervisors: Manindra Agrawal and Gaurav Sharma (external)

Thesis Title: *Listen and Look: Exploring Audio-Visual Signal Fusion for Improving Deep Learning Tasks*

MUNENDER VARSHNEY (16211265)

Supervisors: Arnab Bhattacharya and Puneet Gupta (external)

Thesis Title: *Improving Efficacy of Deep Neural Networks*

ASHISH DWIVEDI (16211264)

Supervisor: Nitin Saxena and Rajat Mittal

Thesis Title: *Polynomials over Composites: Compact Root Representation via Ideals and Algorithmic Consequences*

DHANAJIT BRAHMA (17111263)

Supervisor: Piyush Rai

Thesis Title: *Robust and Efficient Lifelong Learning*

PRANTIK CHATTERJEE (17111269)

Supervisor: Subhajit Roy and Akash Lal (external)

Thesis Title: *Efficient Verification and Testing of Software Systems Using Proofs of Unsatisfiability and Multiverse Analysis*

PRIYANKA GOLIA (17111270)

Supervisor: Kuldeep S Meel (external) and Subhajit Roy

Thesis Title: *Functional Synthesis via Formal Methods and Machine Learning*





## JOINT DEGREE (MTech - PhD)

DANG ABHISHEK HEMANTKUMAR (14111261)

Supervisors: Piyush Kurur (external) and Subhajit Roy

Thesis Title: *Certified Programming for Critical Domains Through an EDSL*

SUBIN PULARI (18111272)

Supervisors: Satyadev Nandakumar and Sunil Simon

Thesis Title: *On resource bounded ergodic theorems and the utility of exponential sums in Algorithmic Information Theory*

## **MASTER OF SCIENCE BY RESEARCH (MSR)**

17111401 PANKAJ SIWAN

19111409 SHARAD SHUKLA

19111418 TUSHAR SHANDHILYA

20111405 DIVYA BAGLA

20111406 GAGESH MADAN

20111410 HARSHVARDHAN PRATAP  
SINGH

20111414 NAREIN RAO

20111418 ROHIT SINGH

20211402 PRAGYA AGRAWAL

21111262 AYUSHI MISHRA

21111414 MAYANK SOLANKI

## MASTER OF TECHNOLOGY (MTech)

18111025	I G PRASAD	21111035	MALKEET SINGH DHALLA
18111062	SAURABH KUMAR	21111037	MANISH KUMAR
20111005	ADITYA RAJ	21111038	NANRA MANJYOT SINGH
20111009	AMAN ARYAN		HARJIT SINGH
20111019	GAGANDEEP MANGAT		DALJEET KAUR
21111002	ABHISHEK SAHU	21111039	MANTHAN KOJAGE
21111003	ABHISHEK DNYANESHWAR	21111040	MANU SHUKLA
	REVSKAR	21111043	NAMAN RAJPUT
21111004	ADITYA LOTH	21111044	NEERAJ CHOUHAN
21111005	AKANKSHA SINGH	21111045	NIMIT JAIN
21111006	PANZADE AKASH	21111046	PIYUSH GANGLE
	GAJANAN	21111047	PRAJWAL PRADIPRAO
21111007	AKSHAY KUMAR		THAKARE
	CHITTORA	21111048	PRANSHU SAHIJWANI
21111008	ALOK KUMAR TRIVEDI	21111052	RAVI SHANKAR DAS
21111009	DIBBU AMAR RAJA	21111053	ROHIT KUSHWAH
21111011	NANDURI ANIRUDH	21111056	SHARANYA SAHA
21111013	ANUJ SHRIVASTAVA	21111058	SHIVAM KHARWAR
21111014	ARCHI GUPTA	21111060	TABISH AHMAD
21111017	MORE ASHITOSH	21111061	TANIKELLA SAI KIRAN
	VANKATRAO	21111063	UTKARSH SRIVASTAVA
21111019	AYUSH SAHNI	21111064	VANKUDRE VARUN SUNIL
21111020	AYUSH SINGH		SHAILAJA
21111023	DEEPAK KUMAR	21111065	VATSAL SINGH
21111024	DEEPAK RAJ	21111066	VATSAL PRAMOD JHA
21111025	DINKAR TEWARI	21111067	VIKAS
21111027	DIVYANSH BISHT	21111069	RAHUL KUMAR
21111028	GAJENDER SHARMA	21111073	ASHISH AHLUWALIA
21111030	AGARWAL HARSH	21111074	SHASHANK SHUSHAN
21111031	I V NAGARJUN REDDY		
21111032	JEET SARANGI		

## MASTER OF TECHNOLOGY (MTech)

22111001	ABHAY KUMAR DWIVEDI	22111046	PRANJAL KUMAR SRIVASTAVA
22111013	ATUL KUMAR		
22111014	AVNISH TRIPATHI	22111051	SAMARTH JOSHI
22111020	TRIPATHI DIVYESH DEVANGKUMAR	22111052	KALE SANKET SANJAY
22111025	HAMMAD ANSARI	22111055	SHUBHASHISH MOITRA
22111033	KUSH SHAH	22111066	MORLAWAR VAMSHIKIRAN BHASKAR
22111038	MANIK SHEKHAR	22111081	SHREE HARISH S
22111044	NIHAL THUKARAMA RAO		

# BACHELOR OF TECHNOLOGY (BTech)

170353	KUMAR GOURAV SONGARA	200270 200291	BHAVYA GARG CHANDEKAR VIDISH VIJAY
180085	ANCHIT SINGH BHAGTANA	200341	DISHAY UDAY MEHTA
180265	GAURAV KUMAR	200352	DIVYANSH MANAKCHAND
180335	K NIKITA		KANKARIYA
180645	SAHAJ NAGARWAL	200371	GARGI NALADKAR
180735	SHREYA KACHOLIA	200387	GIRIK MASKARA
190087	AKHIL HOODA	200390	GOPAL AGGARWAL
190395	JAMI SAI CHANDRA PRAKASH	200396	GUTIA RAGHAVENDRA CHOWDARY
190416	KARPURAPU MANOJ KUMAR	200412 200422	HARSH JAIN HARSH TRIVEDI
200003	AAKASH OM TRIVEDI	200428	HARSHIT BANSAL
200004	AARCHIE	200429	HARSHIT GUPTA
200008	AAYUSH KUMAR	200432	HARSHIT KUMAR TIWARI
200022	ABHISHEK BANSOD	200433	HARSHIT RAJ
200026	ABHISHEK PARDHI	200440	HET HITENDRAKUMAR PATEL
200036	ADI PRATAP SINGH		
200057	ADITYA TANWAR	200449	HITESH ANAND
200070	AKANKSHA SINGH	200467	JANHVI ROCHWANI
200074	AKASH BISWAS	200468	JASJOT SINGH
200076	AKHIL AGRAWAL	200471	JAVA GUPTA
200077	AKHIL JAIN	200472	JAVA MEENA
200084	AKSHATGARG	200477	JHAANSI REDDY
200092	AKSHUNYA VIJAYVARGIYA	200482	KAIRAMKONDA JAHNAVI
200117	ANANYA AGRAWAL	200483	KAJAL DEEP
200140	ANKUR KUMAR	200492	KARTAVYA DAMOR
200151	ANSHU KUMARI	200503	KAVYAJALAN
200174	ANUSHKA PANDA	200505	KEMBASARAM NITIN
200186	ARNAV GUPTA	200521	KRISHAN KUMAR
200189	ARPIT KUMAR	200530	KULDEEP SINGH CHOUHAN
200190	ARPIT KUMAR RAI		
200203	ARYAN SHARMA	200532	KUMAR ARPIT
200204	ARYAN VORA	200536	KUNWAR PREET SINGH
200229	AVI KUMAR	200539	KUSHAGRA SHARMA
200231	AVINASH PRASAD	200541	KUSHAL GEHLOT

## BACHELOR OF TECHNOLOGY (BTech)

200542	L GOKULNATH	200849	SAMARTH ARORA
200554	MANAS GUPTA	200856	SANDEEP KUMAR
200556	MANDAR WAYAL		BIJARNIA
200560	MANISH MEENA	200860	SANGLE DEEPAK SANJIV
200562	MANNEM RISHWAN REDDY	200886	SARTHAK KOHLI
200567	MAURYA JADAV	200906	SAURAV KUMAR
200568	MAYANK	200916	SHARATH KUMAR V
200580	MEHTA SHREY KARTIK	200923	SHASHWAT GUPTA
200586	MODEM SAL CHARAN	200956	SHREYASI MANDAL
200595	MOHD UMAM	200966	SHUBHAM KUMAR
200597	MOHIT GUPTA	200971	SHUBHAN R
200599	MOTUPALLI SANA CHAITANYA	200990	SOHAM SAMADDAR
200619	NAMAN SINGLA	200991	SOLANKI KEVALKUMAR BALVANTBHAI
200622	NAPA JAVA PRAKASH	200996	SOURABH MINA
200637	NIKHIL VERMA	200997	SOURAV ANAND
200643	NISHANT ROSHAN	201013	SUKET RAJ
200645	NISHI MEHTA	201036	SWETA KUMARI
200667	PARINAY CHAUHAN	201049	TATIMANU VEDASREE
200671	PARTH MANIAR	201050	TEJAS RAMAKRISHNAN
200712	PRATHAM JAIN	201055	UDIT PRASAD
200717	PRATYUSH GUPTA	201058	UJJAWAL GOYAL
200721	PRAVEEN SINGH	201059	UJJWAL KUMAR
200727	PRIYA GOLE	201060	UJWAL JYOT PANDA
200730	PRIYAL AGRAWAL	201071	UTTAM KUMAR
200731	PRIYANKA MEENA	201079	VAIDIK SHARMA
200772	RASHMI G R	201089	VARTIKA
200775	RATHOD PREET	201094	VASANTHAPU POOJITHA LAKSHMI
200792	RISHAV BIKARWAR	201119	VIKASH KUMAR
200813	ROHIT	201133	VIVEK AGRAWAL
200820	RONIT MITTAL	201144	YASH GUPTA
200826	S PRADEEP	201148	YASH RAJ MITTAL
200836	SAHIL BANSAL	201161	YEGINATI VINAYTEJA
200848	SAMARPREET SINGH		

## DOUBLE MAJOR (BTech)

190189	ARYASH PATERIYA (CE)	190154	ANMOL PABLA (ME)
190649	PRIYANKA JALAN (CHE)	190620	PRANAB PANDEY (ME)
190997	YASH GUPTA (ECO)	190023	ABHIMANYU SETHIA (MTH)
190068	ADITYA RANJAN (EE)		
190818	SHORYA KUMAR (EE)		

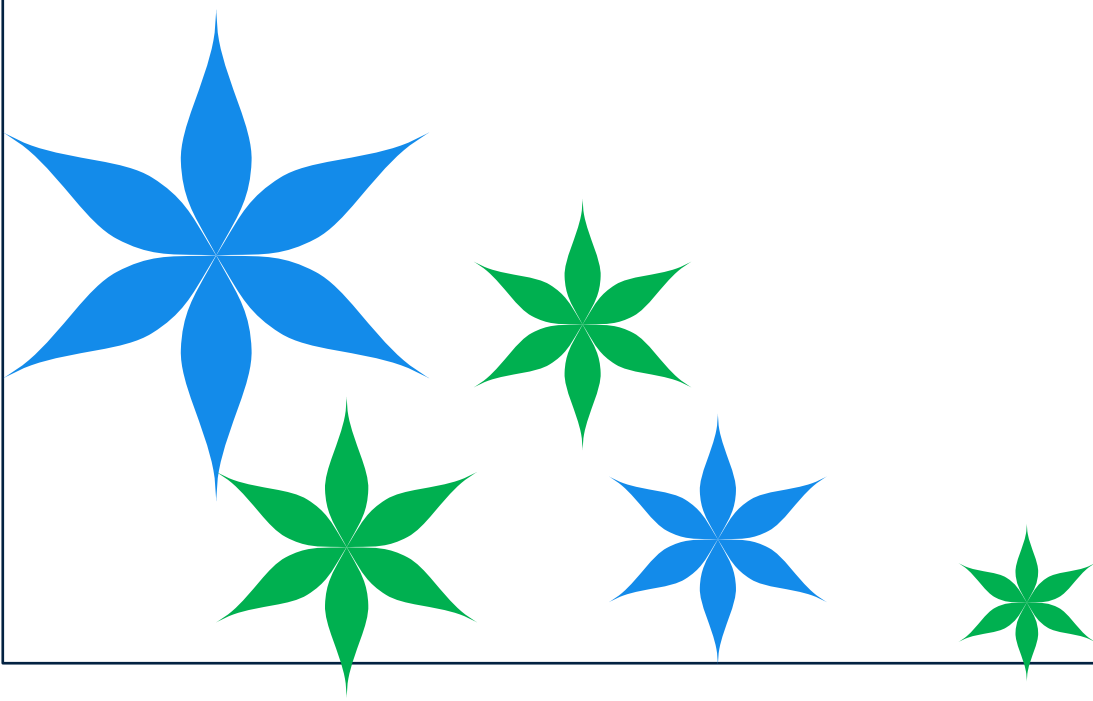
All students listed above got their second major in CSE. The department of their first major is indicated within the parentheses.

## eMasters

22157004	AJIT PRATAP SINGH	22157068	UTKARSHA AGNIHOTRI
22157008	ANIMESH MISRA	22157070	VARSHA TIWARI
22157009	ANKIT KOURAV	22157071	VIKAS GOYAL
22157013	ASHISH KUMAR UPADHYAY	22157074	VIPUL SOOD
22157015	BINAYOK BHOWMIK	23157002	ACHYUTHUNI VENKATA SIDHARTHA
22157016	BISWAJIT LENKA	23157003	ADAMYA VARMA
22157017	CHINTALAPATI RAGHAVA KRISHNA TEJA	23157008	ANUDEEP MISHRA
22157020	DEVESH KUMAR	23157012	BHARAT SHARMA
22157021	KULKARNI DHANANJAY DEEPAK RAJESHREE	23157015	DEBADARSHY DASH
22157025	GYAN PRAKASH	23157019	JAIESH NATH PANDEY
22157028	LOKESH B S	23157021	KANMANI B
22157032	NARESHKANNA K	23157022	KARAN SHAH
22157033	NAVEEN A	23157028	LUV AHUJA
22157034	NAVNEET RAI	23157030	MAYANK VERMA
22157035	NEHA GUPTA	23157039	NISHANT KHATRI
22157037	OM PRAKASH MISHRA	23157041	OJASVI ASHISH CHAUHAN
22157038	OSHIN GUPTA	23157044	POORVIT JAIN
22157043	PARTHA SARATHI MONDAL	23157045	PRADEEP KUMAR C
22157045	PRASHANT KUMAR	23157052	RIBHU KASHYAP
22157046	PRITHWISH DASGUPTA	23157053	RISHABBH RISHI
22157047	THERAMBIL RAGISH JAYAPALAN	23157056	SANDEEP JINDAL
22157054	SANDIP KUMAR	23157060	SHIV RAM KRISHNA
22157055	SHASHANK SHEKHAR SINGH	23157065	SUMEET GANDHI
22157057	SHIVBIHARI PANDEY	23157066	SUMEET SUDHEER GAWANDE
22157058	SHUBHAM PANDEY	23157067	TAPAS PADHI
22157059	M SRI RAMYA	23157069	TEJAS PATHAK
22157063	SURAJ D BALIGA	23157070	TUSHAR DWIVEDI
22157065	TANIA RANI	23157071	UDAYAN GARG
22157066	TIWARI SUSHIL BHOLANATH	23157074	VANDIT SHARMA
		23157076	VINAYAK VIJAY KADAM



# Awards and Honors 57<sup>th</sup> Convocation 2024



## List of Awardees

### **PRESIDENT'S GOLD MEDAL**

*For the best academic performance among the graduating students of all disciplines in all the 4-year / 5-year undergraduate programmes*

200542      L Gokulnath

### **DIRECTOR'S GOLD MEDAL**

*For outstanding all round achievement and leadership among all the students graduating in 4-year undergraduate programmes*

200886      Sarthak Kohli

### **RATAN SWARUP MEMORIAL PRIZE**

*Best all rounder among students graduating in all 4-year/5-year programs.*

201050      Tejas Ramakrishnan

### **MANAS MANDAL BEST PH.D. THESIS AWARD**

*For the best thesis in Doctor of Philosophy program in the CSE department*

17111270      Priyanka Golia

### **GENERAL PROFICIENCY MEDAL**

*For the best academic performance among the graduating students of all 4-year/5-year and 2-year M.Sc. programmes in each of the departments*

200542      L Gokulnath  
190189      Aryash Pateriya (CE-CSE)  
190997      Yash Gupta (ECO-CSE)  
190620      Pranab Pandey (ME-CSE)

### **PROFICIENCY MEDAL**

*For the best undergraduate project work done by graduating students in the 4-year/5-year and 2-year M.Sc. programmes in each of the departments*

200008      Aayush Kumar

### **SRI BINAY KUMAR SINHA AWARD**

*For the best undergraduate project of any department that has industrial applicability and partially/completely solves a problem affecting the common people*

200471      Jaya Gupta

### **CHANDRA PRABHA AND CHARAN DASS GUPTA GOLD MEDAL**

*For the best academic performance among all graduating female students in 4-year undergraduate program in any Engineering department*

200471      Jaya Gupta

## List of Awardees (continued)

### **BEST SOFTWARE AWARD**

*For the best software developed by any graduating student or a group of students of any discipline*

14111265      Hrishikesh Rajesh Terdalkar

### **RANJAN KUMAR MEMORIAL AWARD**

*Best socially relevant project by any graduating student(s)*

200433      Harshit Raj

### **PROFESSOR PUTCHA VENKATESWARLU MEMORIAL GOLD MEDAL**

*For the best academic performance among all the graduating 4-year undergraduate students*

200536      Kunwar Preet Singh

### **KANTA DEVI MALIK MEMORIAL AWARD**

*For the best academic performance among all graduating 4-year BTech girl students*

200471      Jaya Gupta

### **RAJIV AND RITU BATRA STUDENT AWARD IN CYBER SECURITY**

*Given to the students graduating from M.Tech. or MS(Research) in the Cyber Security domain*

22111033      Kush Shah

### **PROF. ASR SAI MEMORIAL MEDAL**

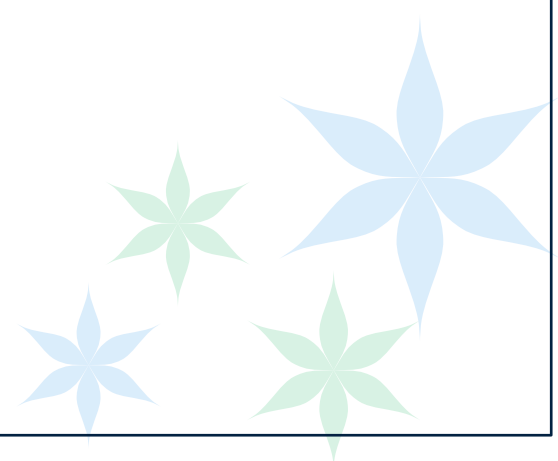
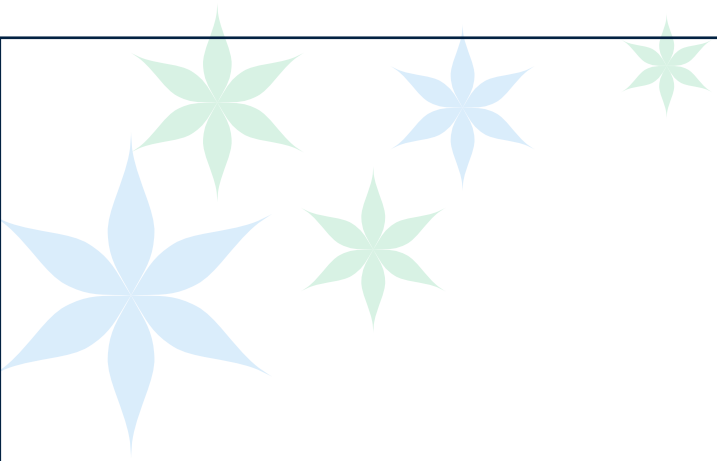
*Outstanding all round achievement among graduating students in 4-year or 5-year program in the CE department.*

190189      Aryash Pateriya (CE-CSE)

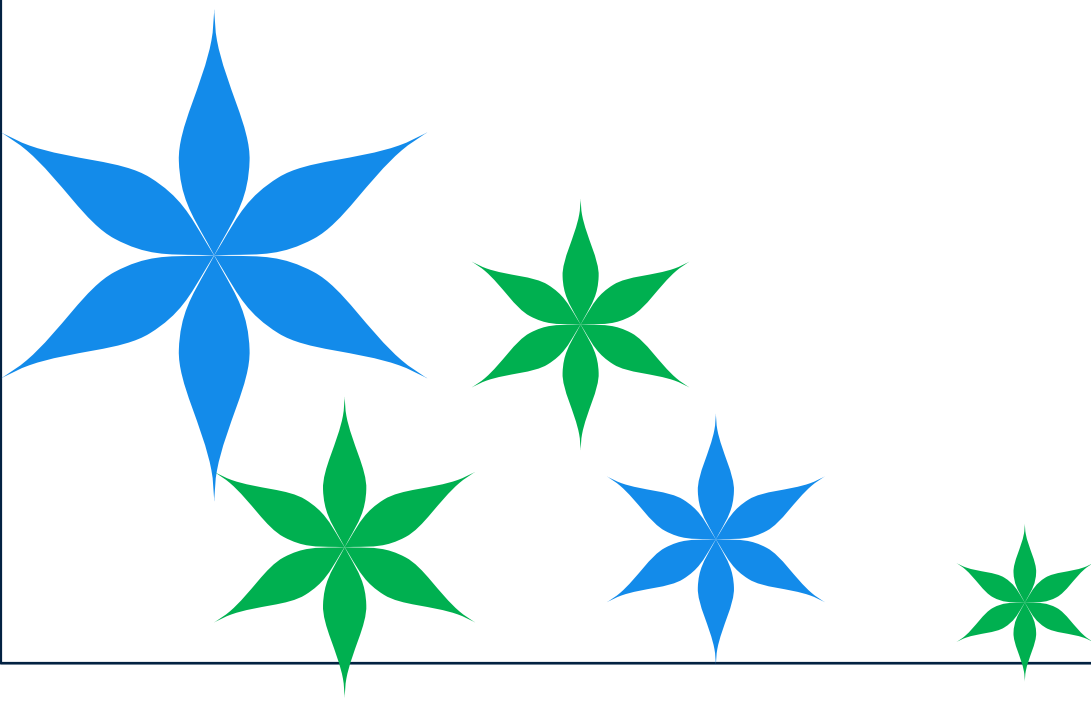
### **GOPAL DAS BHANDARI MEMORIAL DISTINGUISHED TEACHER AWARD**

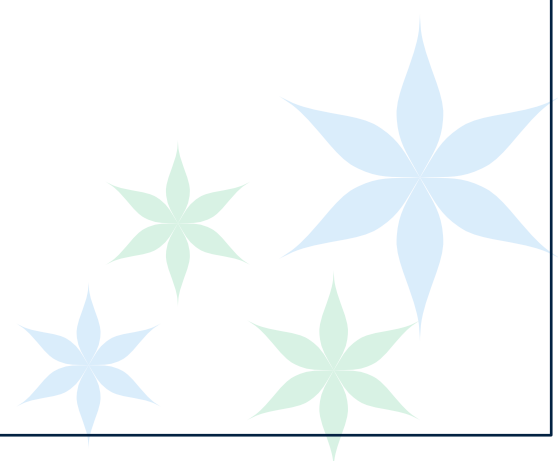
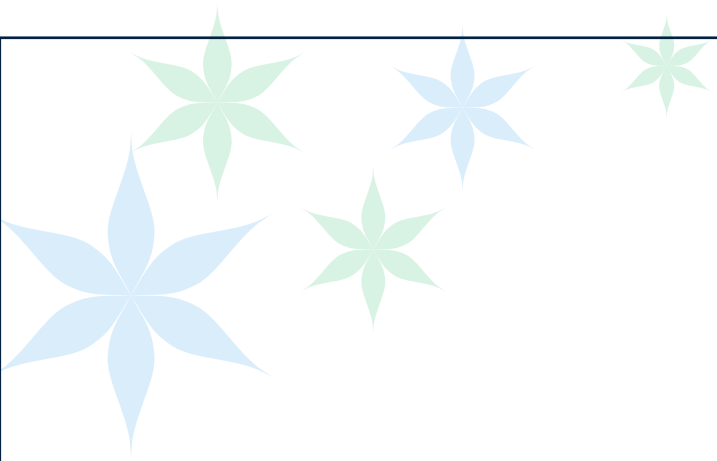
*Given annually to recognize and honor an outstanding teacher of the Institute – to be decided by the Student Senate*

Dr. Purushottam Kar



# Guest of Honor 57<sup>th</sup> Convocation 2024





# FIFTY SEVENTH CONVOCATION

## 29 JUNE 2024

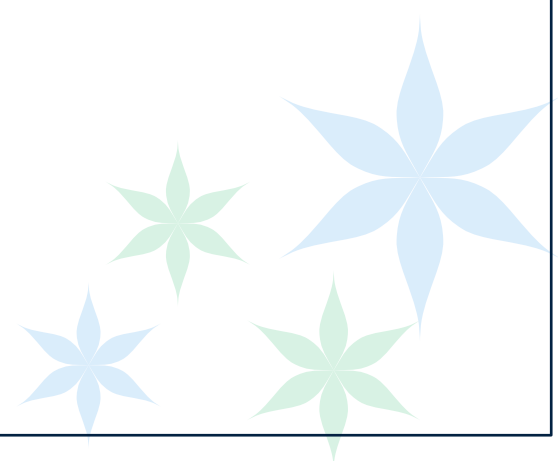
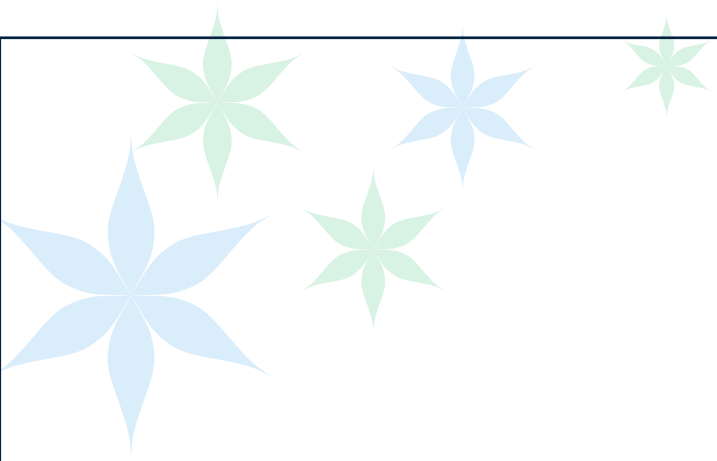
### Guest of Honor for the Department of Computer Science and Engineering



**Abhishek Kumar**

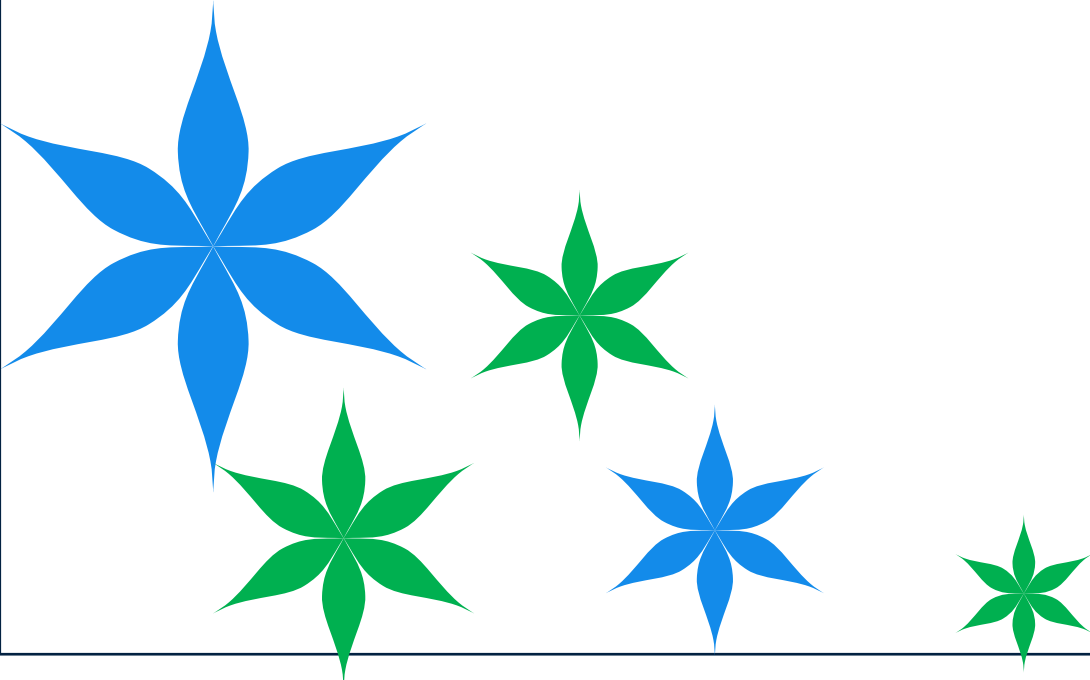
Co-Founder & Chief Executive Officer, MyGate

Abhishek Kumar, an alumnus of IIT Kanpur (BT AE 1998), is the co-founder and current CEO of MyGate. He obtained his B.Tech. from IIT Kanpur and MBA from IIM Ahmadabad. Abhishek has over 24 years of experience in the corporate world and has previously held multiple senior roles in large global corporations. Notably, he spent six years as Vice President at Goldman Sachs before choosing to dedicate his expertise to MyGate, a company specializing in living experience technology for gated communities. MyGate was first launched in 2016 and presently serves over 25,000 housing societies across several cities in India.





# Head's Report 2023-2024



# Head's Report

I extend a warm welcome to the graduating batch of students, their family and friends, and to our guest of honor Mr. Abhishek Kumar at this 57th Convocation of the Indian Institute of Technology Kanpur. I offer my congratulations to the graduating students with a special commendation to award winners for achieving excellence. I am delighted that CSE students have won each one of the three most coveted convocation awards – the President's Gold Medal, the Director's Gold Medal, and the Ratan Swarup Memorial Prize. Our students have won a total of 14 convocation awards. An additional 4 awards were won by B.Tech. students for whom CSE was the second major. In all, our department members have won 19 awards, the largest for any department.

## Department Strength and Intake

In the academic year 2023-24, the department admitted 128 BTech students and a total of 77 PG students (14 PhD, 8 MS and 55 MTech) of which 7 were in admitted to cybersecurity MTech MS programs. 39 students were admitted into the e-Masters program in cybersecurity.

## Graduation

A total of 275 CSE students will be graduating today. Among them are 8 PhD, 2 MTech-PhD (joint degree), 11 MS by Research, 66 MTech, 129 BTech and 59 e-Masters students. 8 UG students will be graduating with a second major from the CSE department. The number of graduating students has increased by 28% since last year with the e-Masters and MSR degrees showing the largest year-on-year increase.

Degree	Recipients
PhD	8
MTech-PhD	2
MSR	11
MTech	66
BTech	129
e-Masters	59
Double Major	8
<b>Total</b>	<b>275 + 8</b>

## Placement

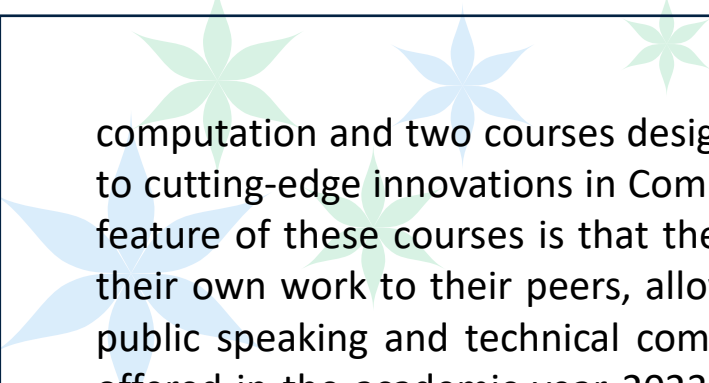
The department witnessed excellent placement, despite market slowdowns, with an overall placement rate of 88%. UG placement rate remained stable at 96.1% whereas PG placement rates witnessed a drop at 75.6%. Placement drives are continuing with several students still receiving offers.

## **R&D Activities**

CSE department members are executing more than 4 dozen consultancy and sponsored research projects with a total funding of more than 130 crores. The projects are funded by corporate bodies, government agencies and philanthropic organizations. More than half a dozen MoUs were signed in the past year with large corporations such as Microsoft, Intel and Wipro, agencies of national importance such as NCIIPC, and sister educational institutions. Department members were awarded 3 patents – of these two inventions concerned cybersecurity aspects such as darknet monitoring and hardware acceleration for cryptographic applications, and one was in the domain of pedagogical tools for massive class sizes. Our research centers CDIS and C3i continue to expand and lead the charge in making widespread impact. CDIS is executing close to a dozen projects, all aimed at providing deployable AI-based solutions to an increasingly diverse client list. This includes military applications such as increasing the effectiveness of missile targeting, fraud prevention in examinations of national importance, working with central ministries and state departments to accelerate the process of document digitization, archival and retrieval, helping Indian citizens report grievances more conveniently and effectively, and developing AI-based solutions to help smart cities achieve sustainability goals. The center is also working with the institute administration to use AI to make IIT Kanpur a paperless campus via extensive form digitization. Meanwhile, C3i has transitioned into becoming a Technology Innovation Hub as a Section 8 company with over 120 employees. In the past year, the Hub has supported more than 4 dozen startups, that resulted in creation of close to 1500 jobs, made 161 publications and trained more than 10 thousand individuals. Some of the key activities of the hub involve novel blockchain applications, promoting the use of Security Operations Centre (SOC) technology in the nation, and advancements in threat detection and honeypot technology. More details about the CDIS and C3i centers, and department R&D activities more generally, are available in the convocation brochure.

## **Teaching**

The department welcomed Dr. Adithya Vadapalli into its faculty whose research areas include Applied Cryptography, Private Information Retrieval, Secure Multiparty Computation, Zero-Knowledge Proofs and Oblivious RAMs. Three new courses were introduced in the past year, one in secure



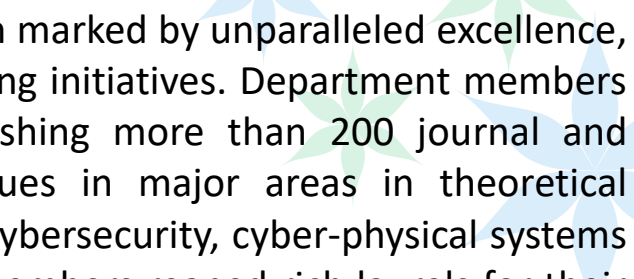
computation and two courses designed to give PG students an introduction to cutting-edge innovations in Computer Science and Engineering. A unique feature of these courses is that they give PG students a chance to present their own work to their peers, allowing them to develop soft-skills such as public speaking and technical communication. A total of 55 courses were offered in the academic year 2023-24, a 10% increase from previous year, with 40 offerings being PG electives (40) and 15 being UG core and elective courses. Our PG course offerings place emphasis on recent innovations and burning areas such as blockchain technology, privacy preservation, quantum computing, cybersecurity, deep learning, reinforcement learning and natural language processing. Our courses remain in extremely high demand across the institute, with an average class size of more than 80 students. Our largest PG course on Introduction to Machine Learning was offered to more than 1000 students in the past academic year, spread across three offerings.

### **Department Events**

The department is an exciting place to be, with lots of intriguing events taking place round the year. Notable among them is the HPC symposium held in April 2024. IIT Kanpur's new Param Sanganak system, ranking among the top 10 in India, has a peak capacity of 1.6 petaflops. The symposium, organized by Dr. Preeti Malakar (HPC Coordinator), featured a range of talks on recent advancements enabled by HPC such as in AI, climatology and drug discovery. The event hosted a keynote by the DST Secretary Prof. Abhay Karandikar. The department celebrated its Research Scholars' Day on April 07 where more than 25 students presented their research work in the form of engaging posters. The event also featured a keynote by Prof. Nitin Gupta (BSBE) on "*Variability and Reliability in Brain Networks*". The event was graced by Prof. Somenath Biswas as the guest of honor. The Association for Computing Activities (ACA), a student-led body, organized several events, such the Happy Hour, guidance sessions for internships, resume building, interview preparation, and networking, teacher's day ceremony and farewell ceremony.

### **Outcomes and Achievements**

It gives me great pleasure to inform you that Prof. Manindra Agrawal, an alumnus and member of the department faculty, has been appointed as the director of IIT Kanpur. Prof. Agrawal's journey dates back to 1982 when he joined the institute as an undergraduate student. This paved the way for a



4-decade long association that has been marked by unparalleled excellence, real-world impact and institution building initiatives. Department members continued to excel in research, publishing more than 200 journal and conference papers targeting top venues in major areas in theoretical computer science, computer systems, cybersecurity, cyber-physical systems and AI and data science. Department members reaped rich laurels for their research accomplishments. Prof. Nitin Saxena received the prestigious J. C. Bose Fellowship, INSA fellowship, and the IIT Bombay International Award for Excellence in Research in Engineering and Technology. PhD student Pranjal Dutta received the ACM India 2023 Doctoral Dissertation Award, multiple papers authored by department members won best paper or best student paper awards. Multiple department faculty members won awards for excellence in teaching such as the Distinguished teacher Award, Excellence in Teaching Award, the 1989 Batch Faculty Award and the Gopal Das Bhandari Memorial Distinguished Teacher Award. A list of achievements by department members is available in the convocation brochure.

### **The Changing World**

The head's report last year exhorted the graduating students to remain alert in a fast-changing world. That exhortation remains resoundingly relevant even though an entire year has passed. Both technological innovations, such as the impact of AI, as well as geopolitical developments, have the potential to be disruptors as well as opportunity creators. Being supple, flexible and forever eager to learn, adapt and innovate, may become the keys to success more than technical knowledge or a mastery of a particular skill. Your degree program concludes today and sends you out into a world full of opportunities. Your drive and initiative, along with mastery of your chosen discipline, are assets of the nation. Ensure that your endeavors benefit your family, your society, the nation and the entire humanity. I conclude by congratulating the graduating students once again and wishing them the very best in their future journeys.

-- Amey Karkare





## New Courses Introduced

Course	Proposer	Year
Secure Computation	Dr Adithya Vadapalli	2024
Introduction to Profession and Communication	Convener DPGC	2024
Innovations in Computer Science And Engineering	Convener DPGC	2023

# Notable Achievements

## Fellowships and Editorships

- Dr. Nitin Saxena has received the prestigious J. C. Bose Fellowship.
- Dr. Nitin Saxena has received the IIT Bombay International Award for Excellence in Research in Engineering and Technology for the year 2023.
- Dr. Nitin Saxena was elected a fellow of the Indian National Science Academy for the year 2023.
- Dr. Adithya Vadapalli has received the Rajiv and Ritu Batra New Faculty Fellowship.
- Dr. Purushottam Kar has received the P K Kelkar Faculty Fellowship.

## Student Scholarships

- PhD student Anindya Ganguly has received the TCS Research Scholarship

## Teaching Awards

- Dr. Mainak Chaudhuri has received the Distinguished teacher Award for UG & PG for the year 2023.
- Dr. Raghunath Tewari has received the Excellence in Teaching Award for the year 2023.
- Dr. Purushottam Kar has received the 1989 Batch Faculty Award for the year 2023 for efforts to enhance undergraduate teaching at IITK using technology.
- Dr. Surender Baswana has Distinguished teacher Award for UG & PG for the year 2024.
- Dr. Purushottam Kar has received the annual Gopal Das Bhandari Memorial Distinguished Teacher Award for the year 2024.

## Research Awards

- Dr. Amitangshu Pal has received the RICE-IITK Strategic Collaboration Award for the period 2023-2024.
- PhD student Pranjal Dutta received the ACM India 2023 Doctoral Dissertation Award for their thesis titled "*A tale of hardness, de-randomization and de-bordering in complexity theory.*"



## Notable Achievements

### Research Awards (continued)

- A paper titled *“Security Implications of Approximation: A Study of Trojan Attacks on Approximate Adders and Multipliers”* by PhD student Vishesh Mishra and Dr. Urbi Chatterjee received the Best Student Paper Award at the 37th IEEE Conference of VLSI Design 2024
- A paper titled *“A Bug's New Life: Creating Refute Questions from Filtered CS1 Student Code Snapshots”* by PhD student Nimisha Agarwal and Dr. Amey Karkare received the Best Paper Award at the 2nd ACM Global Computing Education Conference (CompEd) 2023.
- A paper titled *“Visual Analysis of Congestion and Interference in Supercomputers”* by MS student Akshay Kumar Sharma, Btech student Depanshu Sahu and Dr. Preeti Malakar received the Best Poster Award at the Student Research Symposium at the 30th IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC) 2023.

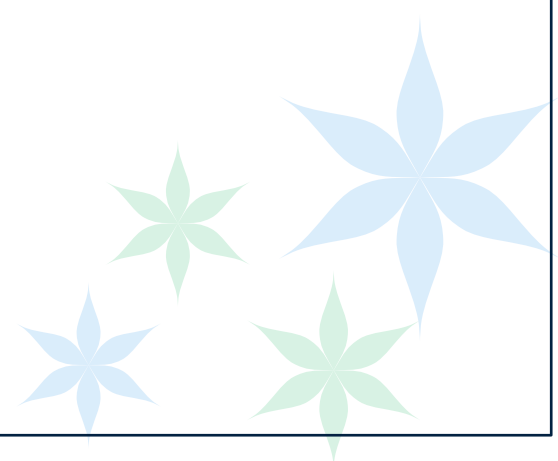
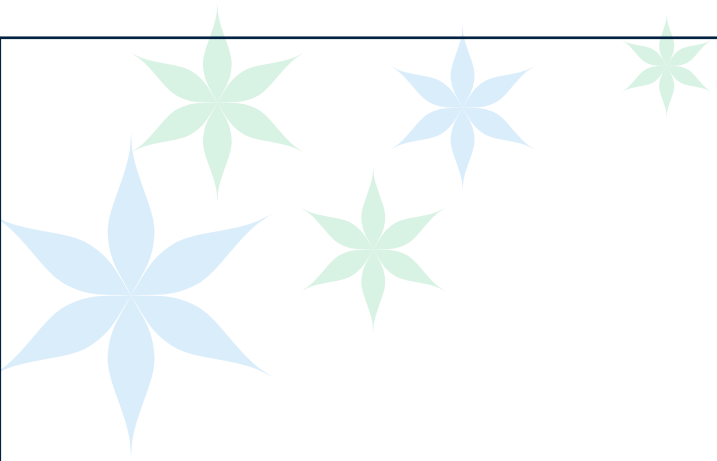




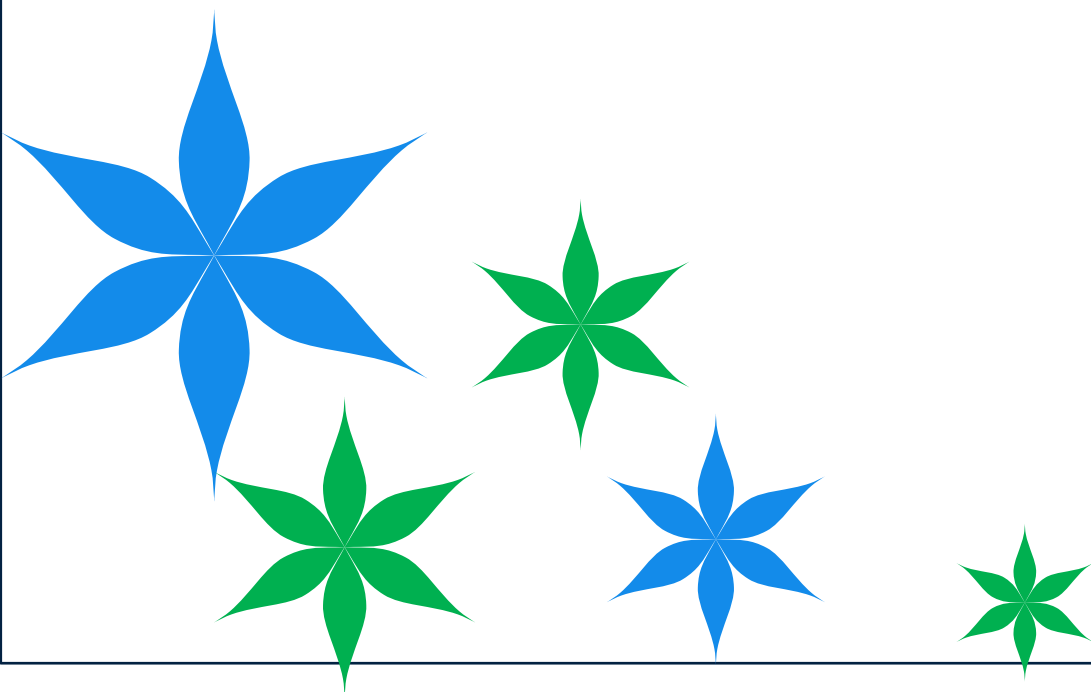
## **New Faculty Members**

**Dr. Adithya Vadapalli**

Research Areas: *Applied Cryptography, Private Information Retrieval, Secure Multiparty Computation, Zero-Knowledge Proofs and Oblivious RAMs*



# R&D Centers



# CDIS: Center for Developing Intelligent Systems

<https://www.iitk.ac.in/cdis/>



Center for Developing Intelligent Systems (CDIS) is an R&D Center within IIT Kanpur dedicated to rapid development and prototyping of intelligent software systems, geared towards solving problems arising within the Indian ecosystem. The center is headed by Dr. Nitin Saxena and Dr. Nisheeth Srivastava with more than a dozen associated faculty members

The center executes a solution development pipeline in collaboration with students, researchers, and engineers to solve real-world problems. It also trains IITK students, researchers, engineers in DevOps with an AI/ML focus. A major portion of the center's activity concerns consulting clients on resource constraints, data privacy, modeling, budgets & timelines.

## **Project C4i (Tonbo Imaging, Solar Group)**



The project expedites the decision-making process for target engagement, minimizing human error in targeting operations and enhancing the accuracy and efficiency of targeting systems. CDIS solutions are aimed at increasing hit accuracy, reducing the need for multiple missiles and cost reduction by significantly lowering the number of missiles required.

## **Facial Recognition (National Testing Agency, Ernst & Young)**



The project is aimed at hastening the identification of errors on admit cards and preventing impersonation at exam centers.

## **Samar Abhilekh (Ministry of Defence)**



The project is creating a comprehensive online repository open to the general public that offers unrestricted access to a vast collection of government documents, saving citizen time and effort and encouraging citizen research initiatives.

## **UP ACO (Uttar Pradesh Police)**



The project is creating an advanced solution for preserving old investigation documents written in Hindi. This will streamline the digitization process for investigation documents, ensuring their accessibility and preservation for future use.

# CDIS: Center for Developing Intelligent Systems

<https://www.iitk.ac.in/cdis/>



## CPGRAMS smart app

CPGRAMS is an online portal that allows any Indian citizen to register their grievances with specific state or central ministries and departments. CDIS has previously worked extensively on helping ministries curate and gain insights into the grievances, leading to speedier resolution and identifying opportunities for policy-based action. CDIS is developing a mobile application to complement the existing web application (also developed by CDIS). The app will allow citizens to communicate in English, Hindi, and other Indian languages via Voice-to-Text.



## Paper2Bits (IIT Kanpur)

CDIS is working with the IIT Kanpur administration and deans' offices to develop an interface to convert printed forms into digital formats. These will subsequently be integrated with IIT Kanpur's online Pingala interface to streamline the digitization of hand-filled forms.



## AI COE

CDIS is a part of an emerging center of excellence aimed at developed AI-based solutions to achieve sustainability goals in Indian smart cities. Several verticals are being targeted including energy, mobility, air-quality and water supply. For instance, CDIS has developed an interface to find out impact of traffic on a region by estimating energy consumption and pollution levels. The system uses AI algorithms to predict energy consumption with high accuracy, allows user to file traffic grievances and forecasts pollution levels and traffic conditions for any specific road in the region. This would significantly improve citizen experience by planning their routes that cover less congested and polluted routes.

# C3iHub: Center for Cyber Security and Cyber Defense for Critical Infrastructure



<https://c3ihub.org/>

C3iHub is a Technology Innovation Hub established at IIT Kanpur (in 2020) funded by the Department of Science and Technology, Government of India, under the National Mission of Interdisciplinary Cyber-Physical Systems (NM-ICPS). Current employee size of C3iHub as a Section 8 company is over 120.

## Key Objectives:

- Develop and deploy security solutions to protect critical sectors of India
- Provide security services to national organizations/enterprises
- Establish cybersecurity ecosystem in India with supported start-ups
- Translate innovations into product commercialization through start-ups
- Create next-generation cybersecurity experts
- Spread cybersecurity awareness

## Overall Achievements in Numbers So Far:

Major Technology Products Deployed/Under Deployment: **15**

Publications: **161**

Start-ups Supported: **49**

R&D Projects Supported: **50**

Trained Individuals: **10759**

Fellowships: **209**

International Collaborations: **7**

Jobs Created: **1445**

## Major Technology Developments/Deployments

### 1. Blockchain-based Transferable Development Rights (TDR) System

C3iHub's developed blockchain-based Transferable Development Rights (TDR) portal has successfully undergone user acceptance testing and has gained approval from the Kanpur Development Authority (KDA) for rollout in Kanpur.

The screenshot shows the TDR Portal Dashboard with the following statistics:

- 7 Available DRCs
- 0 Utilized DRCs
- 0 Cancelled DRCs
- 3 Issued TDRs

The TDR Notices table is as follows:

Notice ID	Azara/Gata #	Village or Ward	KDA Zone	District	Land area (sq.m)	Built Area (sq.m)	Ground Coverage Area (sq.m)	No. of floors	Land use
NOTICE-1-CHAKERI-01-11	536	CHAKERI	1	Kanpur	1000	1000	1000	2	Park
NOTICE-1-CHAKERI-01-10	5363	CHAKERI	1	Kanpur	1000	1000	1000	2	Reserved Forest Or Zoo
NOTICE-1-CHAKERI-01-9	8030	CHAKERI	1	Kanpur	1000	1000	1000	2	Reserved Forest Or Zoo
NOTICE-1-CHAKERI-01-8	37192	CHAKERI	1	Kanpur	1000	1000	1000	2	Master Plan Road

TDR Portal Dashboard

# C3iHub: Center for Cyber Security and Cyber Defense for Critical Infrastructure

<https://c3ihub.org/>



## 2. IT-OT Security Operations Centre (SOC)

Past year, C3iHub has made its SOC compatible with OT assets. The current IT-OT SOC provides maximum safety to the organizations against cyber threats, and is compatible across sectors (power, refinery, manufacturing). Upgraded SOC consists of multiple new platforms including asset inventory & vulnerability management, alert & case management, centralized log management, and organization risk calculation with compliance management (all operational at NHAH headquarters).



**OT SOC & SCADA with Power Hardware-in-the-loop (PHIL) Test Bed**



**OT SOC & SCADA with 4-Stage Water Treatment Plant Test Bed**

## 3. Advanced Persistent Threat (APT) Trapping via Deception Orchestration

C3iHub researchers have developed a novel technology, ADAPT - Adaptive Camouflage-based Orchestration of Behavioral Honeypots, tailored specifically to capture APT attacks. A novel camouflaged chatterbox application has been deployed within the honeypot network. Three real APT scenarios were trapped and 1.4 Crores hits from ~4500 IP Addresses were recorded over 100 days deployment (doi.org/10.1145/3651991).

### New Partnerships:

C3iHub signed MoU with various Industrial and Academic partners including BIT Mesra, Tata Advanced Systems Limited, SAIL's Bhilai Steel Plant, Mumbai Port Trust, International Financial Services Centers Authority, CSJM University, Kanpur, and CSJM Innovation Foundation.

# C3iHub: Center for Cyber Security and Cyber Defense for Critical Infrastructure

<https://c3ihub.org/>



**MoU with  
TASL (left) and  
BSP (right)**

## **R&D Projects and Start-Ups Supported:**

- 17 New R&D projects under R&D Cohort III
- 9 New Start-Ups under Start-up Cohort IV & V

## **Start-ups Achievements Highlights:**

1. Trential Technologies secured \$2 M in seed funding round led by Arkam Ventures.
2. Treacle Technologies raised INR 4 Crores in a pre-seed round led by Inflection Point Ventures.
3. Big Bang Boom Solutions (BBBS) secured deal over Rs. 200 crores from Ministry of Defence for anti-drone system.
4. Aerosys Aviation was granted patent for Vedansh UAV design (Design No. 364605-001).

## **Workshops/Events Organized:**

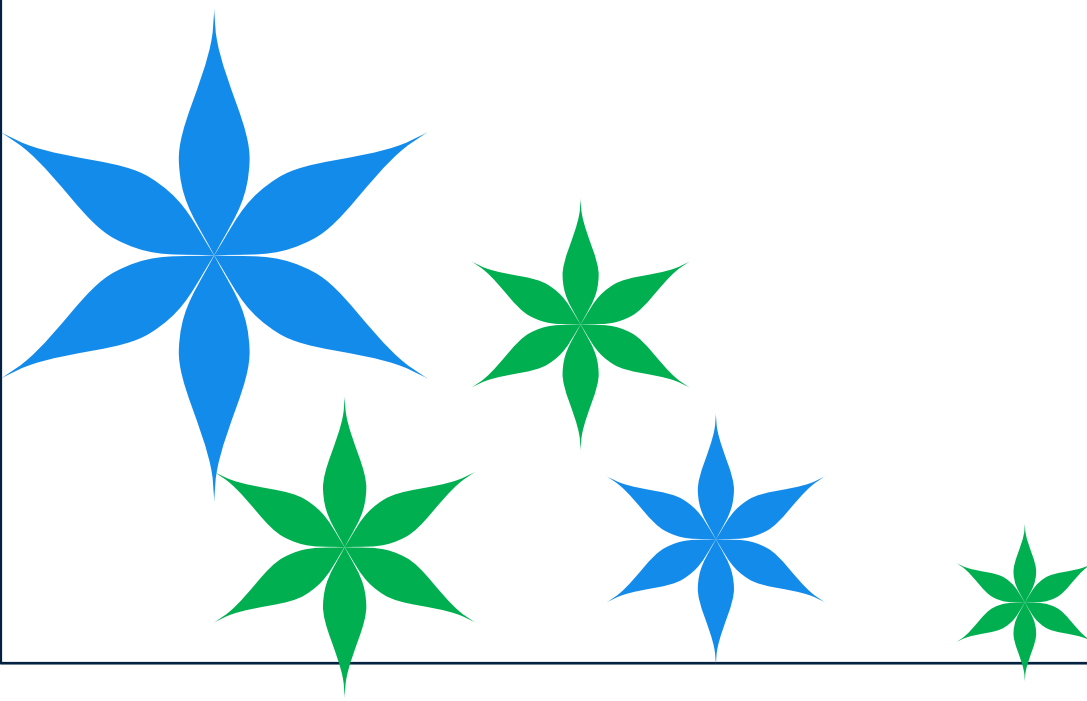
1. 3<sup>rd</sup> National Workshop on Technology Innovation in Cyber-Physical Systems, October 2023
2. 1<sup>st</sup> Workshop on Cybersecurity Capability Maturity Model (CSCMM) Development, November 2023
3. Grand Launch of Start-up Cohorts III, IV, and V, March 2024

## **Patents granted:**

1. Patent granted for 'SYSTEM AND METHOD FOR KERNEL-LEVEL ACTIVE DARKNET MONITORING IN A COMMUNICATION NETWORK' (Patent No. 506825, granted 2024)
2. Patent granted for 'HARDWARE ACCELERATION SYSTEM FOR CRYPTOGRAPHIC TRANSACTIONS' (Patent No. 481157, granted 2024)



# R&D Activities



# Select R&D Projects

## Theory and Algorithms

1. *Predictions for Covid-19 Trajectory* (CII Foundation)  
Dr. Manindra Agrawal
2. *Algebraic Circuits: Learning the Inherent Structure* (SERB)  
Dr. Nitin Saxena

## Systems, Cybersecurity and Cyber-physical Systems

1. *National Interdisciplinary Center for Cyber Security and Cyber Defense of Critical Infrastructures* (SERB)  
Dr. Manindra Agrawal and Dr. Sandeep Kumar Shukla
2. *Development of National Blockchain and Demonstration of Two Strategic Applications* (National Security Council Secretariat)  
Dr. Manindra Agrawal and Dr. Sandeep Kumar Shukla
3. *Operation and Maintenance of Advanced Cyber Security System and Research Center at NHAI* (NHAI)  
Dr. Manindra Agrawal and Dr. Sandeep Kumar Shukla
4. *Providing Guidance on Technical Aspects to the RBI* (RBI)  
Dr. Sandeep Kumar Shukla
5. *Automated Synthesis of Motion Plans for Large Scale Multi-Robot Systems from Complex Specifications* (DRDO JCBCAT)  
Dr. Indranil Saha
6. *Formal Verification of Autopilot Software for UAVs* (IFCPAR)  
Dr. Indranil Saha
7. *Design of Feedback Controllers for Safe Operations of Autonomous Systems* (SERB)  
Dr. Indranil Saha
8. *Effective Sparse Matrix Vector Multiplication with Unsupervised Learning* (Intel)  
Dr. Swarnendu Biswas
9. *Digital forensics of medical devices* (GE Healthcare)  
Dr. Priyanka Bagade
10. *IoT based systems for detection of leakages and water distribution* (National Jal Jeevan Mission)  
Dr. Priyanka Bagade

## Systems, Cybersecurity and Cyber-physical Systems (continued)

11. *Optimal Online Data Analysis And Visualization of Weather Simulations at Exascale* (SERB)  
Dr. Preeti Malakar
12. *Developing Safe and Secure Autonomous Cyber-Physical Systems* (MHRD SPARC)  
Dr. Indranil Saha
13. *Radio Transceiver Assisted EM Side Channel Attack on Crypto Core and Screen Gleaning Using Deep Learning* (DRDO)  
Dr. Urbi Chatterjee and Dr. Sandeep Kumar Shukla
14. *P3-AID: PUF based Privacy Preserving Authentication for Internet of Drones* (SERB)  
Dr. Urbi Chatterjee
15. *Constructing On-chip Leakage Monitor and Countermeasure to Prevent Conventional and Machine-Learning Assisted Side-Channel Attacks on Cryptosystems* (SERB)  
Dr. Debapriya Basu Roy
16. *Constructing On-Chip Leakage* (SERB)  
Dr. Debapriya Basu Roy
17. *Physical attacks on post-quantum cryptography*  
Dr. Angshuman Karmakar
18. *Privacy-preserving applications using computation on encrypted data*  
Dr. Angshuman Karmakar
19. *Design and implementation of post-quantum cryptography*  
Dr. Angshuman Karmakar
20. *Optimised chip Architecture and Rtl designs for Pac and cryptographic algorithms .( JISA Softech Pvt .Ltd.)*  
Dr Debapriya Basu Roy
21. *Toolkit for vulnerability analysis and penetration testing (defence R&D Organisation)*  
Dr. Subhojit Roy and Dr. Urbi Chatterjee
22. *Implementation and fault analysis of post quantam secure lattice and code based cryptography. ( Defence and R&D Organisation)*  
Dr. Debapriya Basu Roy and Dr. Manindra Agarwal

## AI and Data Science

1. *SATHEE - Self Assessment, Test, and Help for Entrance Examination* (National Testing Agency)  
Dr. Amey Karkare
2. *Characterizing the Evolution of Naming Conventions in India* (SERB)  
Dr. Nisheeth Srivastava
3. *Upgrading DARPG Information Systems* (Department Of Administrative Reforms & Public Grievances)  
Dr. Nisheeth Srivastava
4. *Bridging the Genomic and Transcriptional Heterogeneity in Oral Cancer for Identifying Clinically Relevant Features* (DBT)  
Dr. Hamim Zafar
5. *Web-scale Federated Learning* (Google Research)  
Dr. Piyush Rai and Dr. Purushottam Kar
6. *Continual Semi-supervised Multitask Learning* (Qualcomm)  
Dr. Piyush Rai
7. *Virtual Center for Extreme Classification* (Microsoft Research)  
Dr. Purushottam Kar and Dr. Piyush Rai
8. *Automatic code generation for computer vision applications* (Intel Corporation)  
Dr. Priyanka Bagade
9. *Reconstructing Cell Lineage, Invariant and Variable Lineage Maps by Integrating Mutation and Transcriptomic Data from Dynamic Lineage Tracing Experiments* (SERB)  
Dr. Hamim Zafar
10. *Python Data Collection* (Microsoft Research)  
Dr. Amey Karkare
11. *RAA Labs for Samagra Shiksha Delhi* (UEE MISSION, Delhi Govt.)  
Dr. Amey Karkare
12. *Automated Question-Answering Systems for Ramayana* (AICTE)  
Dr. Arnab Bhattacharya
13. *Centre for Sanskrit Studies* (Ministry of Education)  
Dr. Arnab Bhattacharya
14. *Dynamic Hyperlocal Source Apportionment* (Clean Air Fund)  
Dr. Purushottam Kar and Dr. Sachchida Nand Tripathi
15. *DHSA at Kanpur* (RITES)  
Dr. Purushottam Kar and Dr. Sachchida Nand Tripathi

## AI and Data Science (continued)

16. *Affective Machines: A Multimodal Approach for Creating Humane Machines* (SERB)  
Dr. Ashutosh Modi
17. *Differentiation and Diagnosis of Crohn's Disease and Intestinal Tuberculosis using CT-scan images* (SGPGI Hospital, Lucknow)  
Dr. Priyanka Bagade
18. *Short and Long-Term Fog Predictions Using Data Science* (MHRD)  
Dr. Arnab Bhattacharya, Dr. Mahendra Verma and Dr. Shivam Tripathi
19. *Development of a machine learning model to detect and classify errors and security vulnerability generated from different ECUs of a car* (Mercedes-Benz R&D)  
Dr. Urbi Chatterjee
20. *Text-To-Text Translation Among Indian Languages Using Sanskrit-based Interlingua Representation* (MEITY)  
Dr. Arnab Bhattacharya
21. *AI based monitoring of Calls* (Convin.AI)  
Dr. Ashutosh Modi
22. *Development of natural language interfaces for SQL databases* (Intuit Inc.)  
Dr. Ashutosh Modi
23. *Biomedical NLP* (Elucidata)  
Dr. Ashutosh Modi
24. *Anomaly Detection in Exam Logs* (Ernst & Young)  
Dr. Nisheeth Srivastava
25. *NLP Technologies for Judgement Database* (Digi e-Books)  
Dr. Ashutosh Modi
26. *Creation of Science and Technology Content for Indic Wikipedia by IIT Kanpur* (DST)  
Dr. Arnab Bhattacharya and Dr. T. V. Prabhakar
27. *Methods for identifying and redacting protected health information in clinical notes* (MIMANSA Pvt .Ltd)  
Dr. Ashutosh Modi
28. *AI for developing Sign language technique* (Microsoft corporation)  
Dr. Ashutosh Modi
29. *Enabling Interactive BigData Analysis and visualization at exascale* (Science and Engineering Research Board)  
Dr. Soumya Dutta



## Select Patent Grants

**Title of Invention:** System and Method for Managing Virtual Learning Process

**Name(s) of Inventor(s):** Mr. Anchit Singh Bhagtana (B. Tech. Student, CSE), Ms. Shreya Kacholia (B. Tech. Student, CSE), Dr. Amey Karkare (CSE)

**Year of Grant:** 2023

**Title of Invention:** System and Method for a Kernel-level Active Darknet Monitoring Sensor for Gathering Organization-specific Threat

**Name(s) of Inventor(s):** Mr. Putrevu Venkata Sai Charan (Student, CSE), Mr. Gowtham Ratnakaram (external), Dr. Sandeep Kumar Shukla (CSE), Mr. Putrevu Mohan Anand (PhD Student, CSE), Mr. Chunduri Naga Venkata Hrushikesh (PhD Student, CSE)

**Year of Grant:** 2024

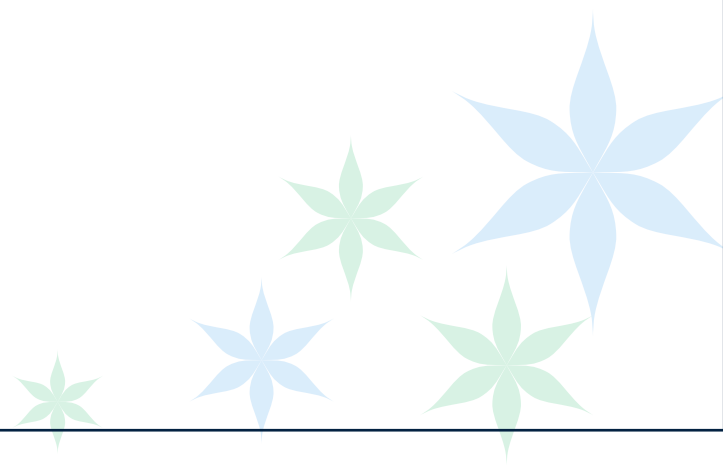
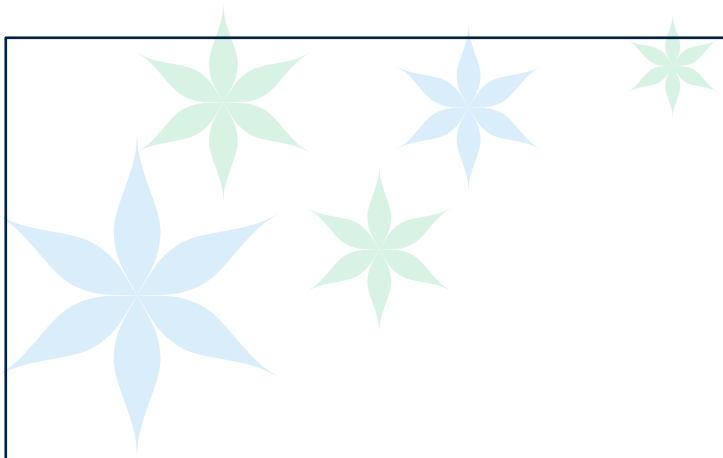
**Title of Invention:** Hardware Acceleration System, Device And Method for Cryptographic Transactions

**Name(s) of Inventor(s):** Dr. Jubin Mitra (Post-Doc Fellow, CSE), Dr. Sandeep K. Shukla (CSE), Dr. Manindra Agrawal (CSE)

**Year of Grant:** 2024

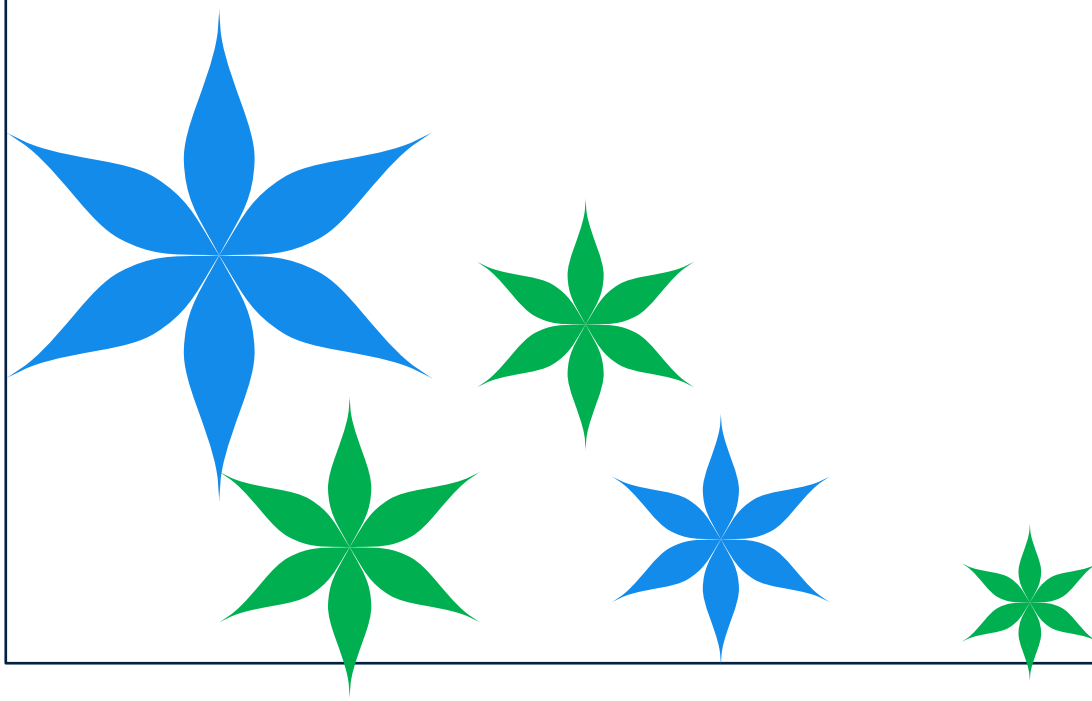
## Select MoUs Signed

- 1. Signing Partner:** Microsoft India R&D Pvt. Ltd., Hyderabad  
**Objective:** Establish an academic partnership program that aims to foster innovation in areas such as earth and cloud computing as well as data-driven content creation.
- 2. Signing Partner:** Wipro GE Healthcare Private Limited, Bengaluru  
**Objective:** Collaborate on the advancement of digital forensic technology for medical devices.
- 3. Signing Partner:** Information Technology Institute for the Tribes of India, Doon Sanskrit School, Dehradun  
**Objective:** Establish a state-of-the-art Advanced Innovative Integrated Laboratory at the ITITI Doon Sanskrit School premises.
- 4. Signing Partner:** IHUB NTIHAC Foundation  
**Objective:** Jointly develop sector-specific Cyber Security Capability Maturity Models for the National Critical Information Infrastructure Protection Center (NCIIPC).
- 5. Signing Partner:** Intuit Inc, Mountain View, Carolina, USA  
**Objective:** Development and generation of a range of semantically equivalent queries and prompts for general QnA systems, as well as the analysis of the model's sensitivity to these varied inputs.
- 6. Signing Partner:** Mimansa AL Pvt. Ltd.  
**Objective:** Methods for Identifying and Redacting Protected Health Information in Clinical Notes.
- 7. Signing Partner:** Intel Technology India Pvt. Ltd., Bengaluru  
**Objective:** Establish the Intel India Research Fellowship Agreement with the aim of funding for a candidate to pursue a research project.
- 8. Signing Partner:** RajCOMP Info Services Ltd (RISL)  
**Objective:** Use of e-Governance technologies such as blockchain to safeguard data integrity in records management, integrated financial management systems, e-coupons, electronic health records, and the Janadhar residents' data repository.





# Select Publications



## Theory and Algorithms

1. Shivgunde, P., Thakare, S., Sen, S., Kanitkar, M., Agrawal, M., Vidyasagar, M. COVID-19 Pandemic in Malegaon: SUTRA over the Three Waves (2023) *Indian Journal of Microbiology*, 63 (3), pp. 344-351.
2. Solving polynomial systems over non-fields and applications to modular polynomial factoring with Sayak Chakrabarti and Ashish Dwivedi (accepted in) *Journal of Symbolic Computation*, 2024.
3. Lower bounds for the sum of small-size algebraic branching programs with C.S. Bhargav and Prateek Dwivedi Annual Conference on Theory and Applications of Models of Computation (TAMC), 2024.
4. Learning the coefficients: A presentable version of border complexity and applications to circuit factoring with C.S. Bhargav and Prateek Dwivedi 56th Annual ACM Symposium on Theory of Computing (STOC), 2024.
5. Nitin Saxena: How Easy Is It to Describe Hard Polynomials?: Technical Perspective. *Commun. ACM* 67(2): 100 (2024)
6. Chakrabarti, S., Saxena, N. An effective description of the roots of bivariate polynomials mod  $p$  and the related Igusa's local zeta function (2023) *ACM International Conference Proceeding Series*, pp. 135-144.
7. Batra, R., Saxena, N., Shringi, D. Explicit construction of  $q+1$  regular local Ramanujan graphs, for all prime-powers  $q$  (2023) *Computational Complexity*, 32 (1), art. no. 2, .
8. Pranjal Dutta, Prateek Dwivedi, Nitin Saxena: Deterministic identity testing paradigms for bounded top-fan-in depth-4 circuits. *CoRR abs/2304.11325* (2023)
9. Anindya Ganguly, Angshuman Karmakar, Nitin Saxena: VDOO: A Short, Fast, Post-Quantum Multivariate Digital Signature Scheme. *CoRR abs/2312.09535* (2023)
10. Anindya Ganguly, Angshuman Karmakar, Nitin Saxena: VDOO: A Short, Fast, Post-Quantum Multivariate Digital Signature Scheme. *IACR Cryptol. ePrint Arch. 2023: 1925* (2023)
11. Jain, R., Tewari, R. Space efficient algorithm for solving reachability using tree decomposition and separators (2024) *Theoretical Computer Science*, 982, art. no. 114251, .
12. Das, R., Ramanujam, R., Simon, S. A Logical Description of Priority Separable Games (2023) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14329 LNCS, pp. 31-46.

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13. Jain, R., Tewari, R. On Solving Reachability in Grid Digraphs using a Pseudo separator (2023) *Theory of Computing*, 19 (2), .
14. C Gupta, R Jain, R Tewari, Space-constrained algorithm for computing separators in surface-embedded graphs (2023).
15. Mittal, R., Nair, S.S., Patro, S. On Query Complexity Measures and Their Relations for Symmetric Functions (2024) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14508 LNCS, pp. 59-73.
16. Chakraborty, S., Kayal, C., Mittal, R., Paraashar, M., Sanyal, S., Saurabh, N. On the Composition of Randomized Query Complexity and Approximate Degree (2023) *Leibniz International Proceedings in Informatics, LIPIcs*, 275, art. no. 63, .
17. Chakraborty, S., Gál, A., Laplante, S., Mittal, R., Sunny, A. Certificate Games (2023) *Leibniz International Proceedings in Informatics, LIPIcs*, 251, art. no. 32, .
18. Aakash Mishra, Rajat Mittal, Christy Jestin, Kostas Tingos, Pranav Rajpurkar: Improving Zero-Shot Detection of Low Prevalence Chest Pathologies using Domain Pre-trained Language Models. *CoRR abs/2306.08000* (2023)
19. Sourav Chakraborty, Chandrima Kayal, Rajat Mittal, Manaswi Paraashar, Swagato Sanyal, Nitin Saurabh: On the Composition of Randomized Query Complexity and Approximate Degree. *CoRR abs/2307.03900* (2023)
20. Sourav Chakraborty, Chandrima Kayal, Rajat Mittal, Manaswi Paraashar, Swagato Sanyal, Nitin Saurabh: On the Composition of Randomized Query Complexity and Approximate Degree. *Electron. Colloquium Comput. Complex. TR23* (2023)
21. Akram, W., Saxena, S. Consecutive Occurrences with Distance Constraints (2024) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14508 LNCS, pp. 3-13.
22. Akram, W., Saxena, S. Point Enclosure Problem for Homothetic Polygons (2023) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 13889 LNCS, pp. 13-24.
23. Yijie Han, Sanjeev Saxena: Storage in Computational Geometry. *CoRR abs/2302.11821* (2023)

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24. S Nandakumar, S Pulari, Point-to-set Principle and Constructive Dimension Faithfulness arXiv preprint arXiv:2403.08278(2024)
25. S Nandakumar, S Pulari, S Akhil Finite-State Relative Dimension, dimensions of AP subsequences and a finite-state van Lambalgen's theorem Information and Computation, 105156(2024)
26. Nandakumar, S., Akhil, S., Vishnoi, P. Effective Continued Fraction Dimension Versus Effective Hausdorff Dimension of Reals (2023) Leibniz International Proceedings in Informatics, LIPIcs, 272, art. no. 70, .
27. Lutz, J.H., Nandakumar, S., Pulari, S. A Weyl Criterion for Finite-State Dimension and Applications (2023) Leibniz International Proceedings in Informatics, LIPIcs, 272, art. no. 65, .
28. Nandakumar, S., Pulari, S. Ergodic Theorems and Converses for PSPACE Functions (2023) Theory of Computing Systems, 67 (3), pp. 491-520.
29. Nandakumar, S., Pulari, S. Real Numbers Equally Compressible in Every Base (2023) Leibniz International Proceedings in Informatics, LIPIcs, 254, art. no. 48, .
30. Satyadev Nandakumar, Subin Pulari, Akhil S: Finite-State Relative Dimension, dimensions of A. P. subsequences and a Finite-State van Lambalgen's theorem. CoRR abs/2305.06570 (2023)
31. Satyadev Nandakumar, Akhil S, Prateek Vishnoi: Effective Continued Fraction Dimension versus Effective Hausdorff Dimension of Reals. CoRR abs/2308.07594 (2023)
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33. van Ditmarsch, H., Simon, S. Boolean Observation Games (2024) Journal of Artificial Intelligence Research, 79, pp. 307-357.
34. Apt, K.R., Simon, S. Iterated Elimination of Weakly Dominated Strategies in Well-Founded Games (2023) Electronic Proceedings in Theoretical Computer Science, EPTCS, 379, pp. 16-30.
35. Surender Baswana, Koustav Bhanja, Abhyuday Pandey: Minimum+1 (s, t)-cuts and Dual-edge Sensitivity Oracle. ACM Trans. Algorithms 19(4): 38:1-38:41 (2023)
36. Surender Baswana, Koustav Bhanja: Vital Edges for (s, t)-mincut: Efficient Algorithms, Compact Structures, and Optimal Sensitivity Oracle. CoRR abs/2310.12096 (2023)

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1. Storrier, K., Vadapalli, A., Lyons, A., Henry, R. Grotto: Screaming fast (2 + 1)-PC for  $\mathbb{Z}_2^n$  via (2, 2)-DPFs (2023) CCS 2023 - Proceedings of the 2023 ACM SIGSAC Conference on Computer and Communications Security, pp. 2143-2157.
2. Vadapalli, A., Henry, R., Goldberg, I. DUORAM: A Bandwidth-Efficient Distributed ORAM for 2- and 3-Party Computation (2023) 32nd USENIX Security Symposium, USENIX Security 2023, 6, pp. 3907-3924.
3. S Sasy, A Vadapalli, I Goldberg PRAC: Round-Efficient 3-Party MPC for Dynamic Data Structures Cryptology ePrint Archive 2023.
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6. Padmanabha, S.H., Shaikh, F., Bansal, M., Chatterjee, D., Singh, P., Karkare, A., Kar, P. Advances in Automated Pedagogical Compile-time Error Repair(2023) ACM International Conference Proceeding Series, art. no. 11, .
7. Padmanabha, S.H., Shaikh, F., Bansal, M., Chatterjee, D., Singh, P., Karkare, A., Kar, P. PRIORITY: An Intelligent Problem Indicator Repository (2023) ACM International Conference Proceeding Series, art. no. 9, .
8. Chitra Babu, Neeraj Goel, Amey Karkare: Proceedings of the 16th Annual ACM India Compute Conference, COMPUTE 2023, Hyderabad, India, December 9-11, 2023. ACM 2023
9. Gupta, J., Kant, K., Pal, A., Biswas, J. Configuring and Coordinating End-to-end QoS for Emerging Storage Infrastructure(2024) ACM Transactions on Modeling and Performance Evaluation of Computing Systems, 9 (1), art. no. 4,
10. Pradeep Kumar, P., Kant, K., Pal, A. Nonintrusive Driving Behavior Characterization From Road-Side Cameras (2024) IEEE Internet of Things Journal, 11 (1), pp. 502-509.
11. Suparna Kundu, Angshuman Karmakar, Ingrid Verbauwhede: On the Masking-Friendly Designs for Post-quantum Cryptography. SPACE 2023: 162-184

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12. Amitangshu Pal, Hongzhi Guo, Sijung Yang, Mustafa Alper Akkas, Xufeng Zhang: Taking Wireless Underground: A Comprehensive Summary. ACM Trans. Sens. Networks 20(1): 19:1-19:44 (2024)
13. Wang, J., Pal, A., Yang, Q., Kant, K., Zhu, K., Guo, S. Collaborative Machine Learning: Schemes, Robustness, and Privacy (2023) IEEE Transactions on Neural Networks and Learning Systems, 34 (12), pp. 9625-9642.
14. Basak, S., Pal, A., Bhattacharjee, D. Exploring Low-Earth Orbit Network Design (2023) LEO-NET 2023 - Proceedings of the 2023 Workshop on LEO Networking and Communication, Part of: MobiCom 2023, pp. 1-6.
15. Pal, A., Wang, J., Wu, Y., Kant, K., Liu, Z., Sato, K. Social Media Driven Big Data Analysis for Disaster Situation Awareness: A Tutorial (2023) IEEE Transactions on Big Data, 9 (1), .
16. Zhang, X., Gan, H., Pal, A., Dey, S., Debroy, S. On Balancing Latency and Quality of Edge-Native Multi-View 3D Reconstruction (2023) Proceedings - 2023 IEEE/ACM Symposium on Edge Computing, SEC 2023, pp. 1-13.
17. Kumar, P.P., Kant, K., Pal, A. C-FAR: A Compositional Framework for Anomaly Resolution in Intelligent Transportation Systems (2023) IEEE Transactions on Intelligent Transportation Systems, 24 (1), pp. 1015-1024.
18. A Pal, H Guo, S Yang, MA Akkas, X Zhang Taking wireless underground: a comprehensive summary ACM Transactions on Sensor Networks 20 (1), 1-44
19. PP Kumar, K Kant, A Pal Non-Intrusive Driver Behavior Characterization From Road-Side Cameras arXiv preprint arXiv:2302.13125.
20. Xiaojie Zhang, Mingjun Li, Andrew Hilton, Amitangshu Pal, Soumyabrata Dey, Saptarshi Debroy: End-to-End Latency Optimization of Multi-view 3D Reconstruction for Disaster Response. CoRR abs/2304.01488 (2023)
21. Suparna Kundu, Siddhartha Chowdhury, Sayandeep Saha, Angshuman Karmakar, Debdeep Mukhopadhyay, Ingrid Verbauwhede: Carry Your Fault: A Fault Propagation Attack on Side-Channel Protected LWE-based KEM. IACR Trans. Cryptogr. Hardw. Embed. Syst. 2024(2): 844-869 (2024)

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23. Supriya Adhikary, Angshuman Karmakar: A Fast RLWE-Based IPFE Library and its Application to Privacy-Preserving Biometric Authentication. *IEEE Trans. Emerg. Top. Comput.* 12(1): 344-356 (2024)
24. Puja Mondal, Suparna Kundu, Sarani Bhattacharya, Angshuman Karmakar, Ingrid Verbauwhede: A Practical Key-Recovery Attack on LWE-Based Key-Encapsulation Mechanism Schemes Using Rowhammer. *ACNS* (3) 2024: 271-300
25. Suparna Kundu, Siddhartha Chowdhury, Sayandeep Saha, Angshuman Karmakar, Debdeep Mukhopadhyay, Ingrid Verbauwhede: Carry Your Fault: A Fault Propagation Attack on Side-Channel Protected LWE-based KEM. *CoRR abs/2401.14098* (2024)
26. Kundu, S., Karmakar, A., Verbauwhede, I. On the Masking-Friendly Designs for Post-quantum Cryptography (2024) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14412 LNCS, pp. 162-184.
27. H Saurabh, A Golder, SS Titti, S Kundu, C Li, A Karmakar, D Das SNOW-SCA: ML-assisted Side-Channel Attack on SNOW-V arXiv preprint arXiv:2403.08267(2024).
28. Safiullah Khan, Wai-Kong Lee, Angshuman Karmakar, Jose Maria Bermudo Mera, Abdul Majeed, Seong Oun Hwang: Area-Time Efficient Implementation of NIST Lightweight Hash Functions Targeting IoT Applications. *IEEE Internet Things J.* 10(9, May 1): 8083-8095 (2023)
29. Muhammad Asfand Hafeez, Wai-Kong Lee, Angshuman Karmakar, Seong Oun Hwang: High Throughput Acceleration of Scabbard Key Exchange and Key Encapsulation Mechanism Using Tensor Core on GPU for IoT Applications. *IEEE Internet Things J.* 10(22): 19765-19781 (2023)
30. Archisman Ghosh, Jose Maria Bermudo Mera, Angshuman Karmakar, Debayan Das, Santosh Ghosh, Ingrid Verbauwhede, Shreyas Sen: A 334  $\mu$ W 0.158 mm<sup>2</sup> ASIC for Post-Quantum Key-Encapsulation Mechanism Saber With Low-Latency Striding Toom-Cook Multiplication. *IEEE J. Solid State Circuits* 58(8): 2383-2398 (2023)

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31. Archisman Ghosh, Jose Maria Bermudo Mera, Angshuman Karmakar, Debayan Das, Santosh Ghosh, Ingrid Verbauwhede, Shreyas Sen: A 334 $\mu$ W 0.158mm<sup>2</sup> ASIC for Post-Quantum Key-Encapsulation Mechanism Saber with Low-latency Striding Toom-Cook Multiplication Authors Version. CoRR abs/2305.10368 (2023)
32. Puja Mondal, Suparna Kundu, Sarani Bhattacharya, Angshuman Karmakar, Ingrid Verbauwhede: A practical key-recovery attack on LWE-based key-encapsulation mechanism schemes using Rowhammer. CoRR abs/2311.08027 (2023)
33. Suparna Kundu, Angshuman Karmakar, Ingrid Verbauwhede: On the Masking-Friendly Designs for Post-Quantum Cryptography. CoRR abs/2311.08040 (2023)
34. Anindya Ganguly, Angshuman Karmakar, Nitin Saxena: VDOO: A Short, Fast, Post-Quantum Multivariate Digital Signature Scheme. CoRR abs/2312.09535 (2023)
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36. Supriya Adhikary, Angshuman Karmakar: A Fast RLWE-Based IPFE Library and its Application to Privacy-Preserving Biometric Authentication. IACR Cryptol. ePrint Arch. 2023: 721 (2023)
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38. Suparna Kundu, Siddhartha Chowdhury, Sayandeep Saha, Angshuman Karmakar, Debdeep Mukhopadhyay, Ingrid Verbauwhede: Carry Your Fault: A Fault Propagation Attack on Side-Channel Protected LWE-based KEM. IACR Cryptol. ePrint Arch. 2023: 1674 (2023)
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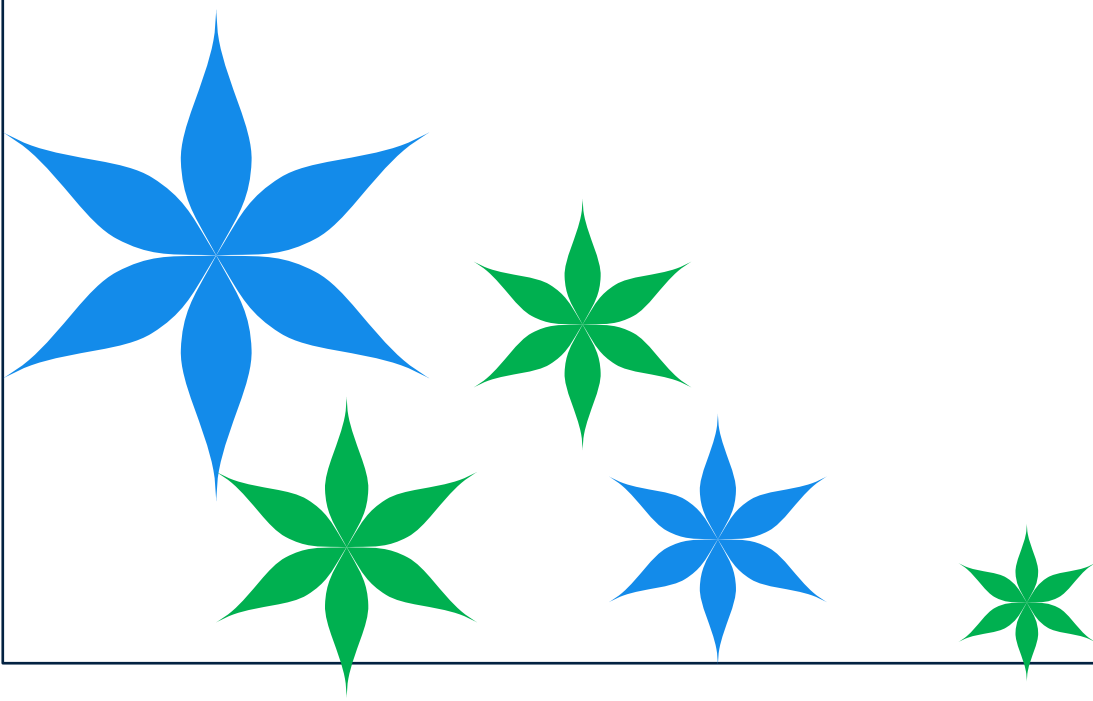
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80. Harshit Goel, Aayush Kumar, Sruti Srinivasa Ragavan: End-User Programming is WEIRD: How, Why and What to Do About It. VL/HCC 2023: 41-50
81. Matin Amoozadeh, David Daniels, Stella Chen, Daye Nam, Aayush Kumar, Michael Hilton, Mohammad Amin Alipour, Sruti Srinivasa Ragavan: Towards Characterizing Trust in Generative Artificial Intelligence among Students. ICER (2) 2023: 3-4
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## AI and Data Science

83. Arnab Bhattacharyya, Sutanu Gayen, Kuldeep S. Meel, Dimitrios Myrisiotis, A. Pavan, N. V. Vinodchandran: On Approximating Total Variation Distance. IJCAI 2023: 3479-3487
84. Arnab Bhattacharyya, Sutanu Gayen, Kuldeep S. Meel, Dimitrios Myrisiotis, A. Pavan, N. V. Vinodchandran: Total Variation Distance Estimation Is as Easy as Probabilistic Inference. CoRR abs/2309.09134 (2023)
85. Arnab Bhattacharyya, Sutanu Gayen, Kuldeep S. Meel, Dimitrios Myrisiotis, A. Pavan, N. V. Vinodchandran: Total Variation Distance Estimation Is as Easy as Probabilistic Inference. Electron. Colloquium Comput. Complex. TR23 (2023)



# Invited Talks and Seminars



## Theory and Algorithms

Title: The quest for a polynomial that is hard to compute and its applications

Speaker: Dr Neeraj Kayal, Rutgers University

Date: July 4<sup>th</sup> 2023

Title: Communication-aware scheduling of precedence-constrained jobs.

Speaker: Dr Rajmohan Rajaraman, Khoury College of Computer Sciences at Northeastern University

Date: August 4<sup>th</sup> 2023

Title: Testing of Index-Invariant Properties in the Huge Object Mode.

Speaker: Dr Sayantan Sen, NUS Singapore.

Date: August 8<sup>th</sup> 2023

Title: Fast Multivariate Multipoint Evaluation over Finite Fields.

Speaker: Dr. Sumanta Ghosh, Caltech University.

Date: September 11<sup>th</sup> 2023

Title: Heroes Zeros in computational complexity

Speaker: Dr. Anurag Pandey, Saarland University.

Date: November 23<sup>rd</sup> 2023.

Title: The Kikuchi Matrix Method: New Spectral Algorithms for Smoothed k-SAT and Applications to Combinatorics.

Speaker: Dr. Pravesh Kothari, Carnegie Mellon University.

Date: November 1st, 2023.

Title: C3iHub DISTINGUISHED TALK .

Speaker: Dr Yuvraj Agarwal, Carnegie Mellon University

Date: January 8th, 2024.

Title: A Look into the Future: Circuits and Systems for a Distributed Network of Wearables and Implants utilizing Human Tissue Conductivity

Speaker: Dr. Mohit Bansal, UNC Chapel Hill.

Date : January 11th, 2024.

## Systems and Architecture

Title: Statistical Model Checking for Probabilistic Temporal Epistemic Logics

Speaker: Dr.Yenda Ramesh, ICFAI Foundation for Higher Education.

Time: 12th June 2023

Title: Should Programming Pedagogy and Assessment Change in Response to Advances in Generative AI?

Speaker: Dr Viraj Kumar, IISc Bangalore

Time: June 30th, 2023

Title: Resource Allocation Techniques for extending the performance of Long-Range Network.

Speaker: Dr. Preti Kumari, National University of Singapore.

Time: August 1st, 2023

Title: Exploring the Cookieverse: A Multi-Perspective Analysis of Web Cookies

Speaker: Dr Devashish Gosain, IIT Delhi

Time: October 3<sup>rd</sup> 2023

Title: Formal Methods for Software Reliability and Synthesis.

Speaker: Dr. Ashish Mishra, Perdue University

Time: 5th October 2023

Title: Securing Processors against Side-Channel Attacks: CPU Caches, Schedulers, and Beyond.

Speaker: Dr. Gururaj Saileshwar , University of Toronto.

Date: October 18th 2023

Title: A Look into the Future: Circuits and Systems for a Distributed Network of Wearables and Implants utilizing Human Tissue Conductivity

Speaker: Dr. Baibhab Chatterjee, University of Florida.

Date: January 23rd 2024

## **Systems and Architecture ( continued ) :**

Title: Towards Secure, Interpretable, and Scalable Machine Learning Applications in Cyber-Physical Systems

Speaker: Dr Shailja Thakur, New York University in the Tandon School of Engineering.

Date: February 16th, 2024

Title: Creating a Quantum-Safe Internet

Speaker: Charles Clancy , MITRE and heads MITRE Lab

Date: February 29th, 2024

Title: Multi-Robot Communication-aware Cooperative Belief Space Planning with Inconsistent Beliefs

Speaker: Dr. Tanmoy Kundu , Israel Institute of Technology,.

Date: March 15th, 2024

## AI and Data Science

Title: Computational Modelling of Human Non-verbal Behaviour 'in-the-wild

Speaker: Dr Shreya , Curtin University

Date: July 20th, 2023

Title: Role of attentional selection in smart transportation

Speaker: Dr. Prerana Mukherjee, JNU

Date: July 25th, 2023

Title: Reinforcement Learning and Nonconvex Optimization via Stochastic Approximation

Speaker: Prof. M. Vidyasagar, IIT Hyderabad

Date: July 31, 2023

Title: Deep Internal Learning for image restoration and image synthesis

Speaker: Dr. Indra Deep Mastan, LNMIIT Jaipur

Date: August 10, 2023

Title: Multimodal Problems in Computational Social Sciences

Speaker: Rajiv Ratn Shah, ITDelhi

Date: February 5th, 2024

Title: Outlier Oblivious Robust Online Optimization

Speaker: Dr. Adarsh Barik, NUS

Date: February 7th, 2024

Title: Applied Machine Learning for Societal Impact: Devices, Satellites and Images

Speaker: Dr Anupam Sobti , Plaksha University

Date: March 26<sup>th</sup> 2024

Title: Spiking Neural Networks: Training and Adversarial Robustness Properties

Speaker: Dr. Bhaskar Mukhoty , MBZUAI

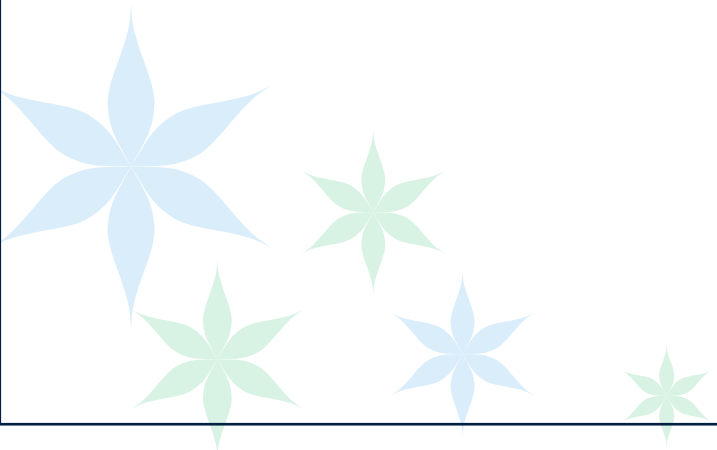
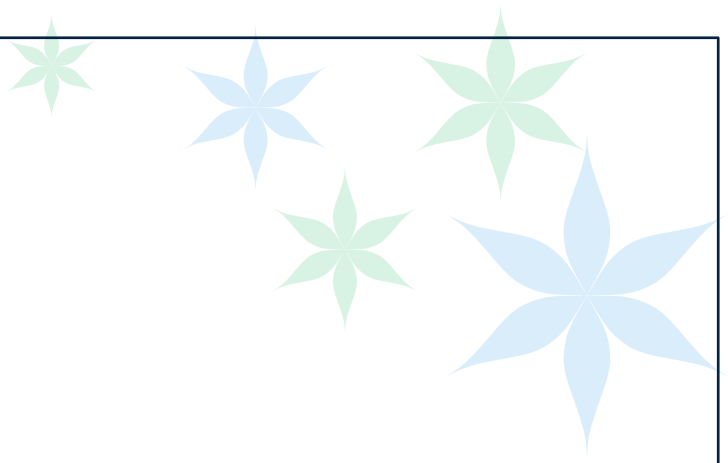
Date: February 13<sup>th</sup> 2024



## Acknowledgments

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1. Members of the CSE department office team
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3. Staff members of the Students Placement Office
4. Staff members of the office of the Dean of Research and Development





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Designed by Aparajita Mukherjee and Purushottam Kar on MS PowerPoint

**Email:** [aparajitam@iitk.ac.in](mailto:aparajitam@iitk.ac.in)

[purushot@cse.iitk.ac.in](mailto:purushot@cse.iitk.ac.in)

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