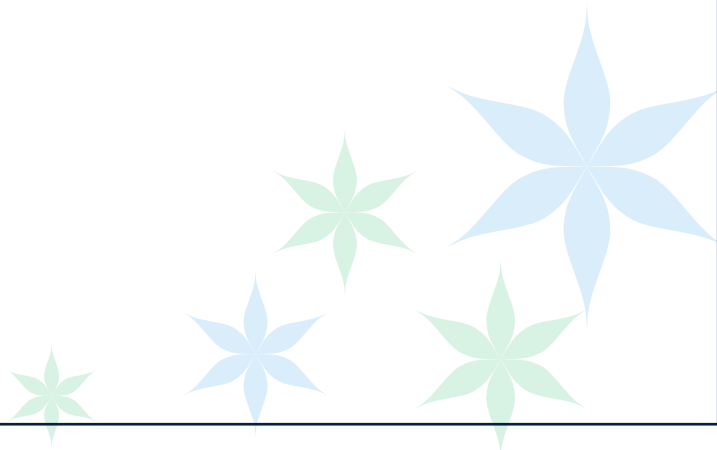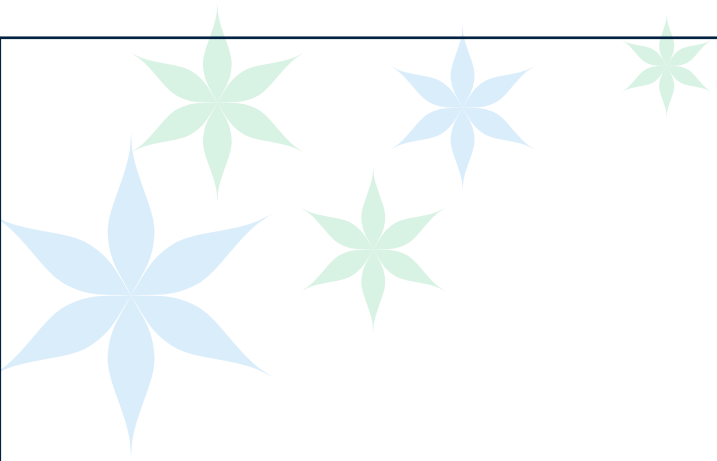Computer Science and Engineering
Indian Institute of Technology Kanpur

57th CONVOCATION
29th 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 विधातव्यः। कस्यामपि दशायां भवद्भिः स्वकीया व्यावसायिकी मर्यादा, चारित्रिकी महत्ता च सयत्नं संरक्षणीये। मनसा, वाचा, कर्मणा च सर्वथा लोक कल्याणाय प्रयतनीयम्। अनुशासनप्रियैः सदा भाव्यम्। स्मर्यतां च 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 an 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."
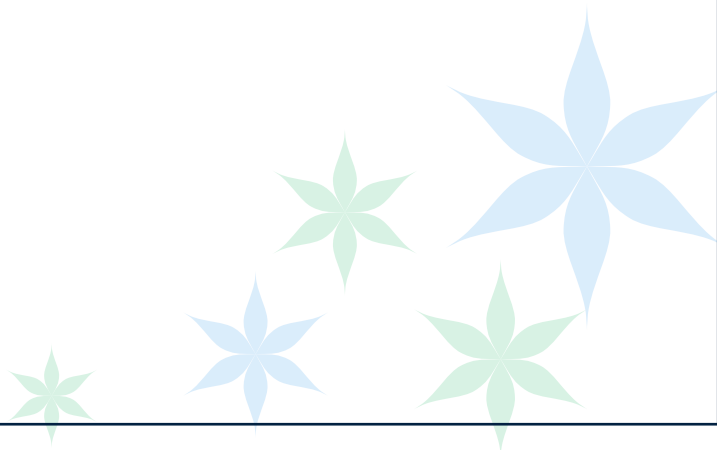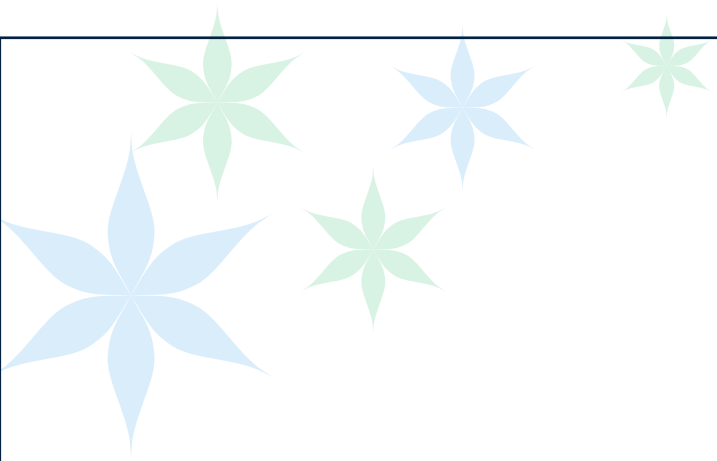
Graduating Students 57th Convocation 2024
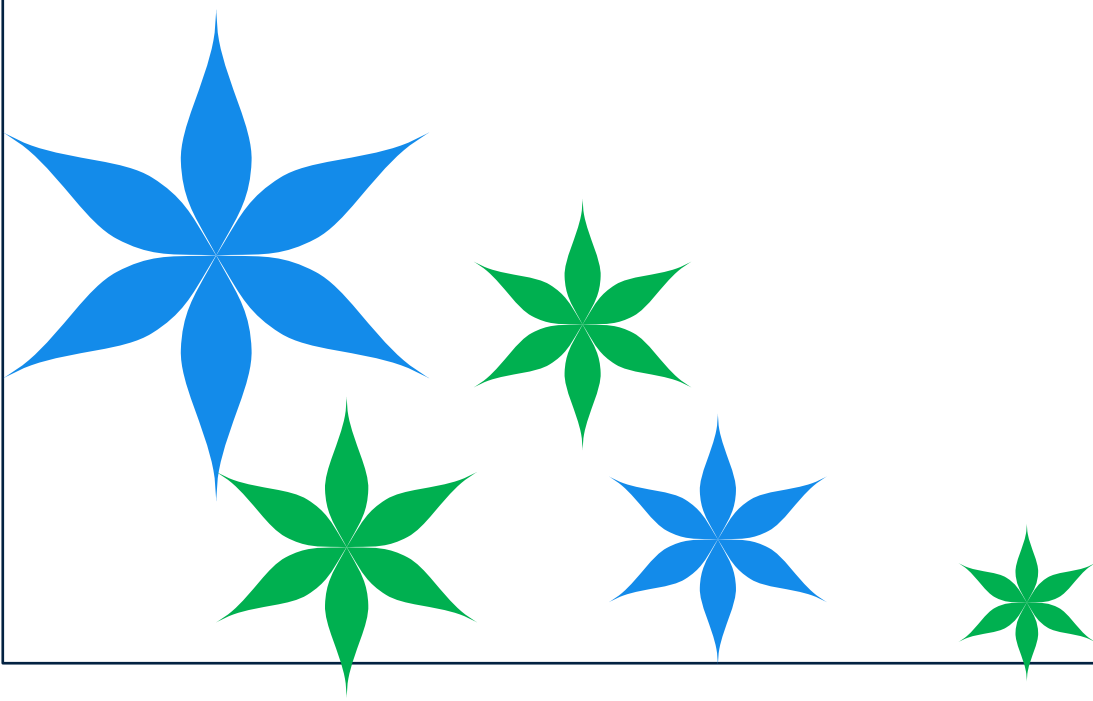
DOCTOR OF PHILOSOPHY (PhD)

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	20111414 NAREIN RAO
19111409 SHARAD SHUKLA	20111418 ROHIT SINGH
19111418 TUSHAR SHANDHILYA	20211402 PRAGYA AGRAWAL
20111405 DIVYA BAGLA	21111262 AYUSHI MISHRA
20111406 GAGESH MADAN	21111414 MAYANK SOLANKI
20111410 HARSHVARDHAN PRATAP SINGH	

MASTER OF TECHNOLOGY (MTech)

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

MASTER OF TECHNOLOGY (MTech)

22111001 ABHAY KUMAR DWIVEDI
22111013 ATUL KUMAR
22111014 AVNISH TRIPATHI
22111020 TRIPATHI DIVYESH
          DEVANGKUMAR
22111025 HAMMAD ANSARI
22111033 KUSH SHAH
22111038 MANIK SHEKHAR
22111044 NIHAL THUKARAMA RAO

22111046 PRANJAL KUMAR
          SRIVASTAVA
22111051 SAMARTH JOSHI
22111052 KALE SANKET SANJAY
22111055 SHUBHASHISH MOITRA
22111066 MORLAWAR
          VAMSHIKIRAN BHASKAR
22111081 SHREE HARISH S

BACHELOR OF TECHNOLOGY (BTech)

170353	KUMAR GOURAV SONGARA	200270	BHAVYA GARG
		200291	CHANDEKAR VIDISH VIJAY
180085	ANCHIT SINGH BHAGTANA	200341	DISHAY UDAY MEHTA
180265	GAURAV KUMAR	200352	DIVYANSH MANAKCHAND KANKARIYA
180335	K NIKITA		
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	HARSH JAIN
		200422	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 BIJARNIA
200556	MANDAR WAYAL		
200560	MANISH MEENA	200860	SANGLE DEEPAK SANJIV
200562	MANNEM RISHWAN REDDY	200886	SARTHAK KOHLI
		200906	SAURAV KUMAR
200567	MAURYA JADAV	200916	SHARATH KUMAR V
200568	MAYANK	200923	SHASHWAT GUPTA
200580	MEHTA SHREY KARTIK	200956	SHREYASI MANDAL
200586	MODEM SAL CHARAN	200966	SHUBHAM KUMAR
200595	MOHD UMAM	200971	SHUBHAN R
200597	MOHIT GUPTA	200990	SOHAM SAMADDAR
200599	MOTUPALLI SANA CHAITANYA	200991	SOLANKI KEVALKUMAR BALVANTBHAI
200619	NAMAN SINGLA	200996	SOURABH MINA
200622	NAPA JAVA PRAKASH	200997	SOURAV ANAND
200637	NIKHIL VERMA	201013	SUKET RAJ
200643	NISHANT ROSHAN	201036	SWETA KUMARI
200645	NISHI MEHTA	201049	TATIMANU VEDASREE
200667	PARINAY CHAUHAN	201050	TEJAS RAMAKRISHNAN
200671	PARTH MANIAR	201055	UDIT PRASAD
200712	PRATHAM JAIN	201058	UJJAWAL GOYAL
200717	PRATYUSH GUPTA	201059	UJJWAL KUMAR
200721	PRAVEEN SINGH	201060	UJWAL JYOT PANDA
200727	PRIYA GOLE	201071	UTTAM KUMAR
200730	PRIYAL AGRAWAL	201079	VAIDIK SHARMA
200731	PRIYANKA MEENA	201089	VARTIKA
200772	RASHMI G R	201094	VASANTHAPU POOJITHA LAKSHMI
200775	RATHOD PREET		
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		
22157017	CHINTALAPATI RAGHAVA KRISHNA TEJA	23157003	ADAMYA VARMA
		23157008	ANUDEEP MISRA
22157020	DEVESH KUMAR	23157012	BHARAT SHARMA
22157021	KULKARNI DHANANJAY DEEPAK RAJESHREE	23157015	DEBADARSHY DASH
		23157019	JAIESH NATH PANDEY
22157025	GYAN PRAKASH	23157021	KANMANI B
22157028	LOKESH B S	23157022	KARAN SHAH
22157032	NARESHKANNA K	23157028	LUV AHUJA
22157033	NAVEEN A	23157030	MAYANK VERMA
22157034	NAVNEET RAI	23157039	NISHANT KHATRI
22157035	NEHA GUPTA	23157041	OJASVI ASHISH CHAUHAN
22157037	OM PRAKASH MISRA	23157044	POORVIT JAIN
22157038	OSHIN GUPTA	23157045	PRADEEP KUMAR C
22157043	PARTHA SARATHI MONDAL	23157052	RIBHU KASHYAP
22157045	PRASHANT KUMAR	23157053	RISHABBH RISHI
22157046	PRITHWISH DASGUPTA	23157056	SANDEEP JINDAL
22157047	THERAMBIL RAGISH JAYAPALAN	23157060	SHIV RAM KRISHNA
		23157065	SUMEET GANDHI
22157054	SANDIP KUMAR	23157066	SUMEET SUDHEER GAWANDE
22157055	SHASHANK SHEKHAR SINGH		
		23157067	TAPAS PADHI
22157057	SHIVBIHARI PANDEY	23157069	TEJAS PATHAK
22157058	SHUBHAM PANDEY	23157070	TUSHAR DWIVEDI
22157059	M SRI RAMYA	23157071	UDAYAN GARG
22157063	SURAJ D BALIGA	23157074	VANDIT SHARMA
22157065	TANIA RANI	23157076	VINAYAK VIJAY KADAM
22157066	TIWARI SUSHIL BHOLANATH		

Awards and Honors
57th Convocation
2024
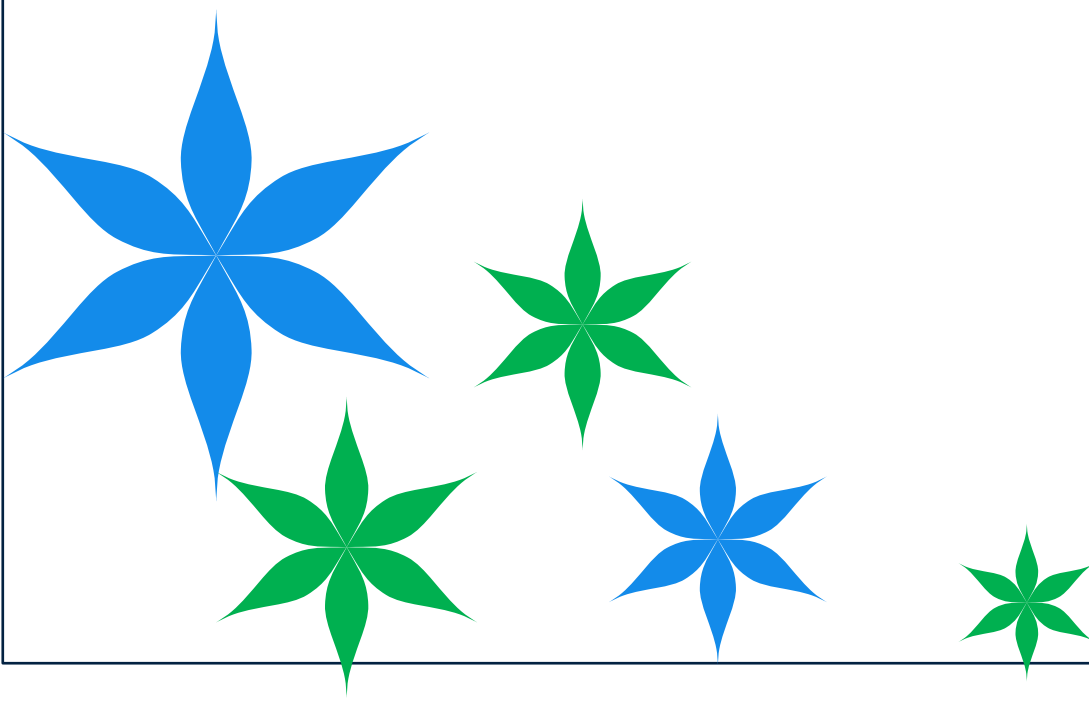
List of Awardees

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

200536   Kunwar Preet Singh

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

200536   Kunwar Preet Singh
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
200428   Harshit Bansal

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
200542   L Gokulnath

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.
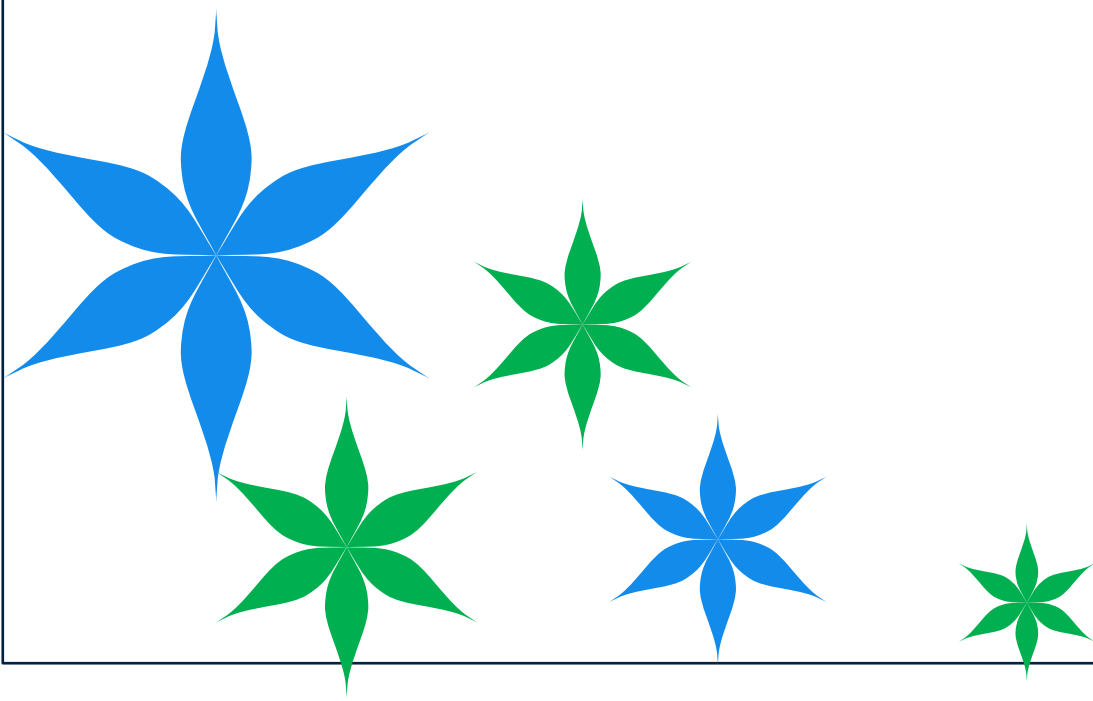190189   Aryash Pateriya (CE-CSE)

GOPAL DAS BHANDARI MEMORIAL DISTINGUISHED TEACHER AWARD
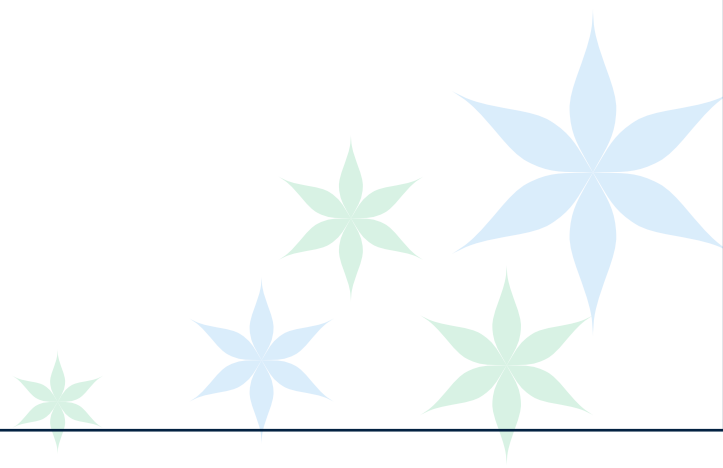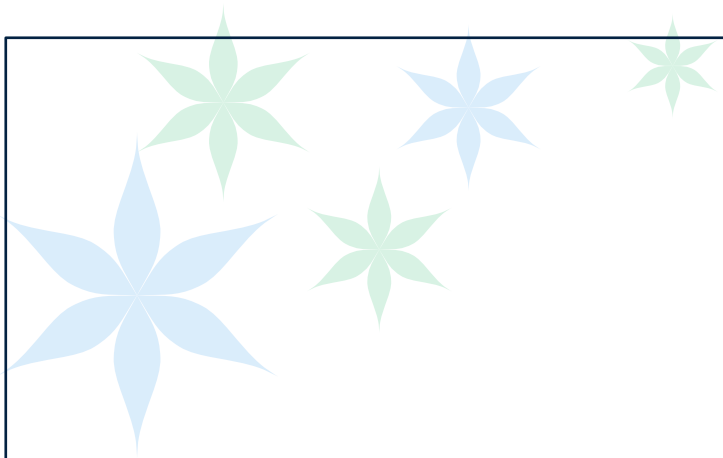*Given annually to recognize and honor an outstanding teacher of the Institute – to be decided by the Student Senate*
Dr. Purushottam Kar
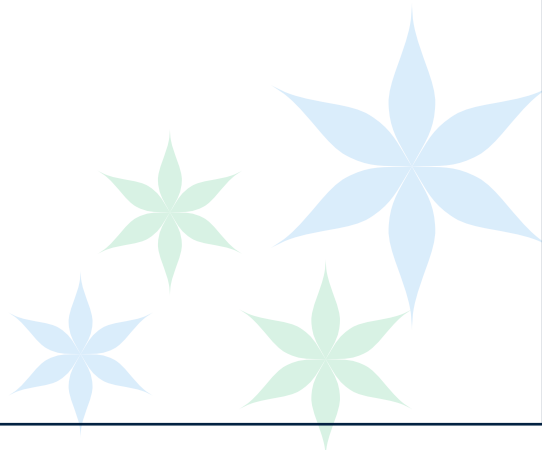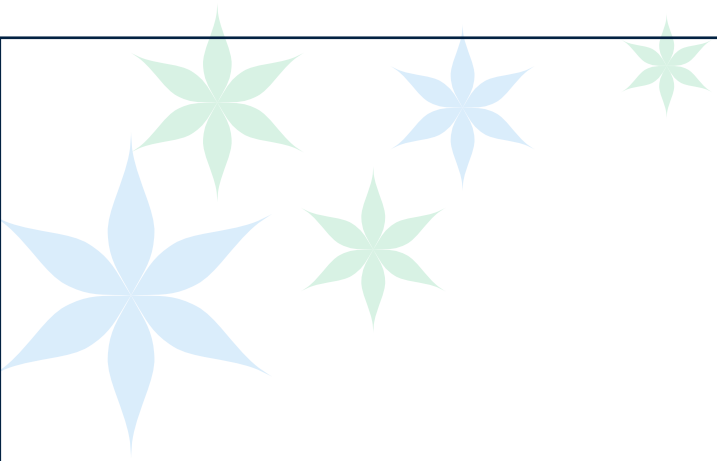
Guest of Honor
57th Convocation
2024

FIFTY SEVENTH CONVOCATION
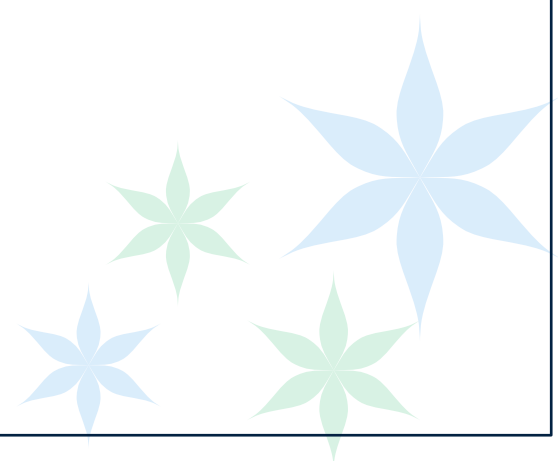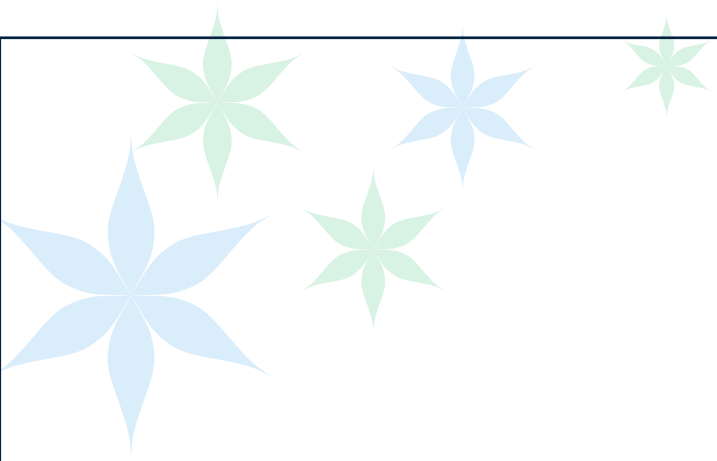## 29 JUNE 2024

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
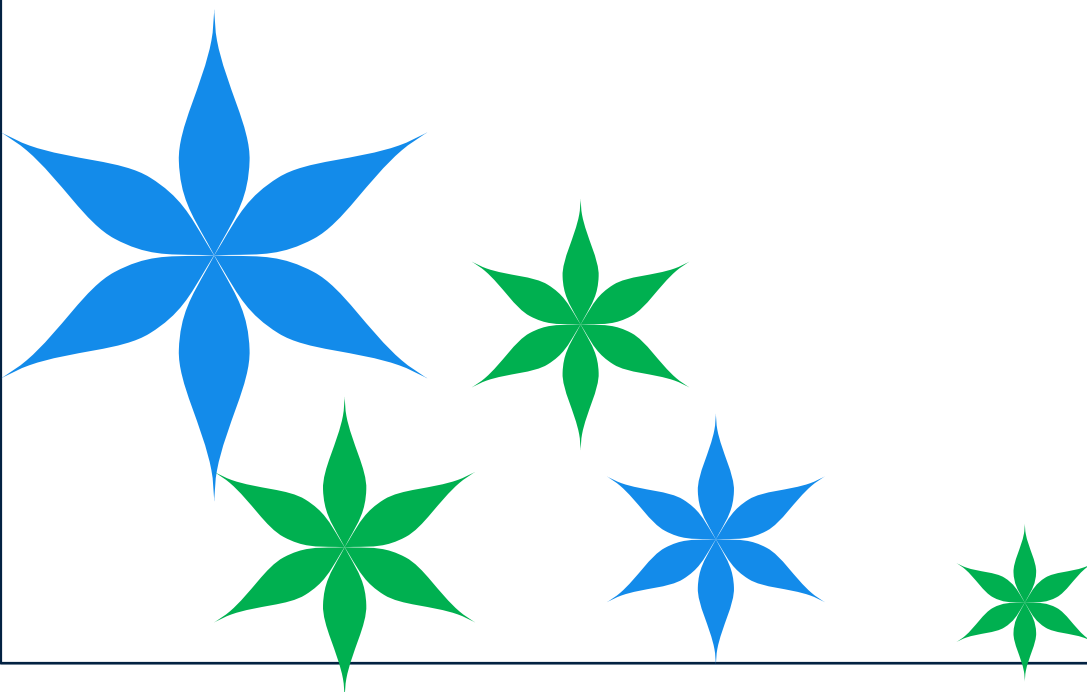
Head's Report

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.

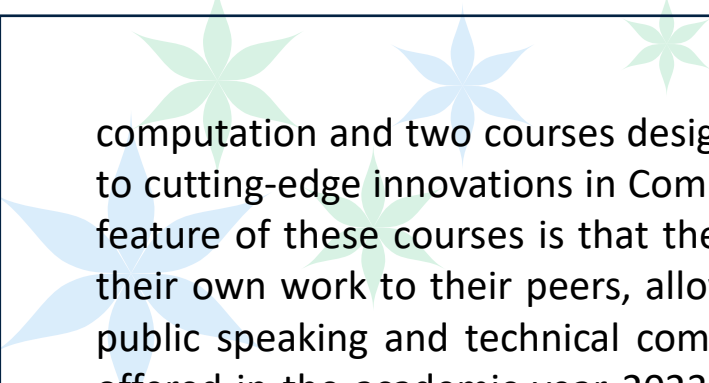| Degree	Recipients
PhD	8
MTech-PhD	2
MSR	11
MTech	66
BTech	129
e-Masters	59
Double Major	8
Total	275 + 8

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
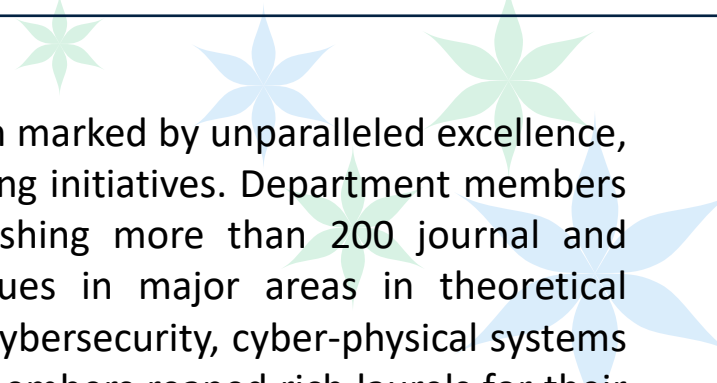
computation and two courses designed to give PG students an introduction to cutting-edge innovations in Computer Science and Engineering. A unique feature of these courses is that they give PG students a chance to present their own work to their peers, allowing them to develop soft-skills such as public 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.
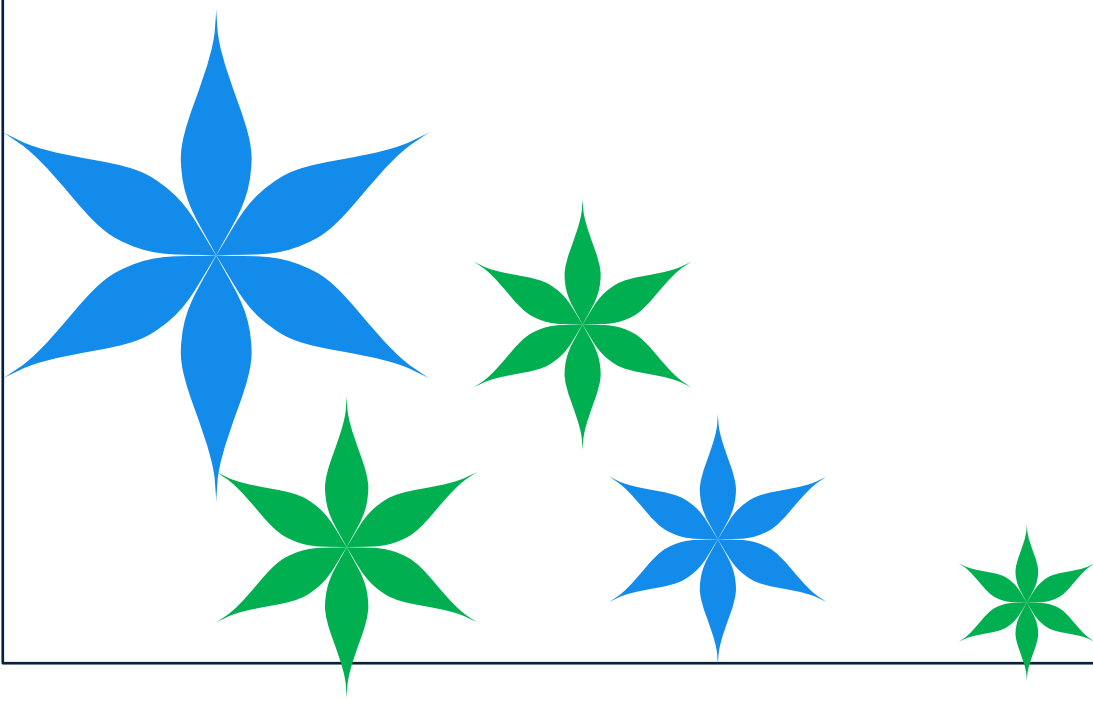
New Faculty Members

Dr. Adithya Vadapalli
Research Areas: *Applied Cryptography, Private Information Retrieval, Secure Multiparty Computation, Zero-Knowledge Proofs and Oblivious RAMs*
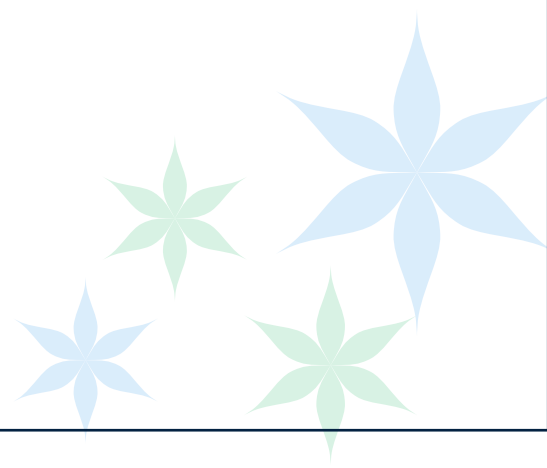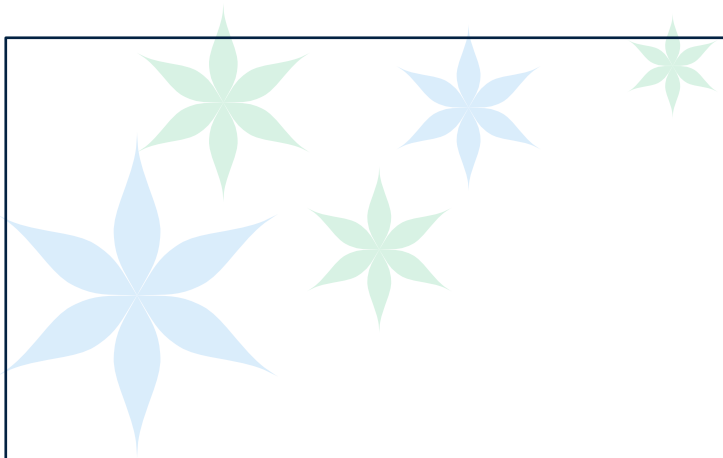
R&D Centers

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.

TDR Portal Dashboard

R&D Centers

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 NHAI 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. 3rd National Workshop on Technology Innovation in Cyber-Physical Systems, October 2023
2. 1st 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
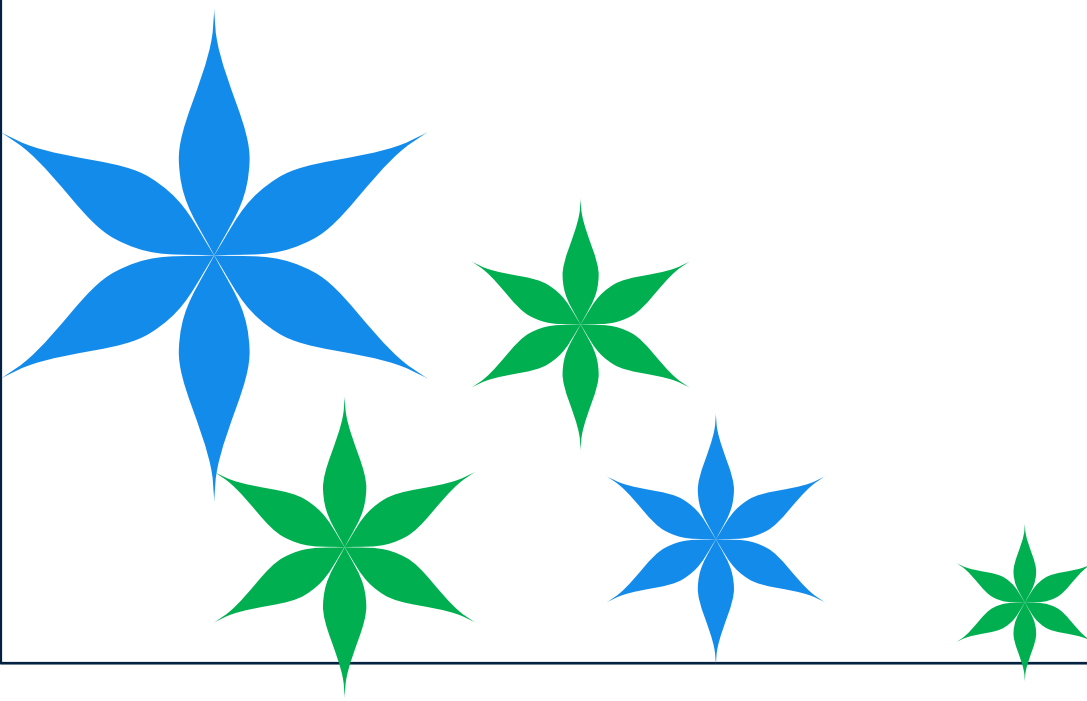
Select R&D Projects

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 Transcriptomatic 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
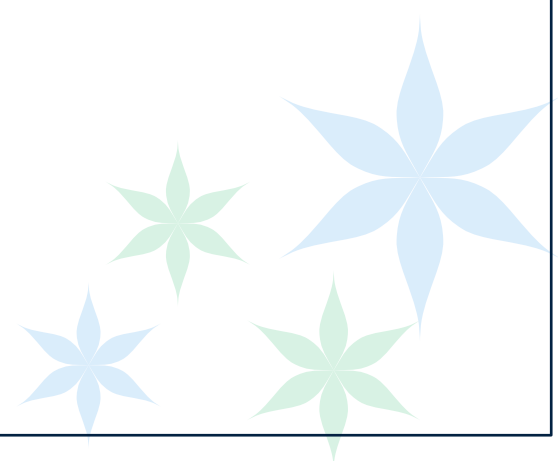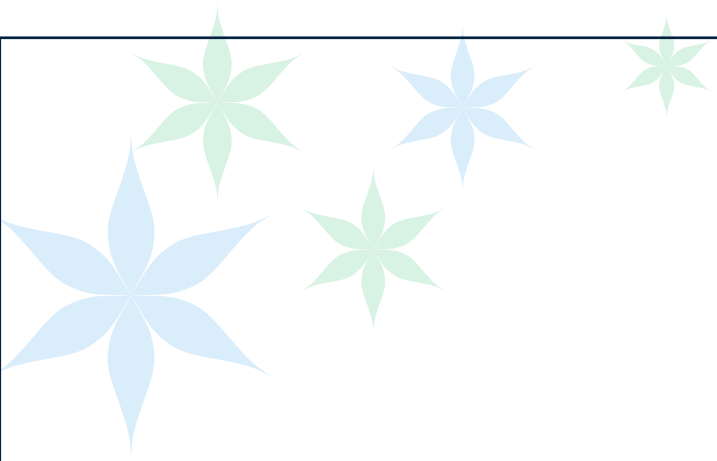
Title of Invention: Hardware Acceleration System, Device And Method for Cryptographic Transactions
Name(s) of Inventor(s): Dr. Jubin Mitra (Post-Doc Fellow, CSE), Dr. Sandeep K. Shukla (CSE), Dr. Manindra Agrawal (CSE)
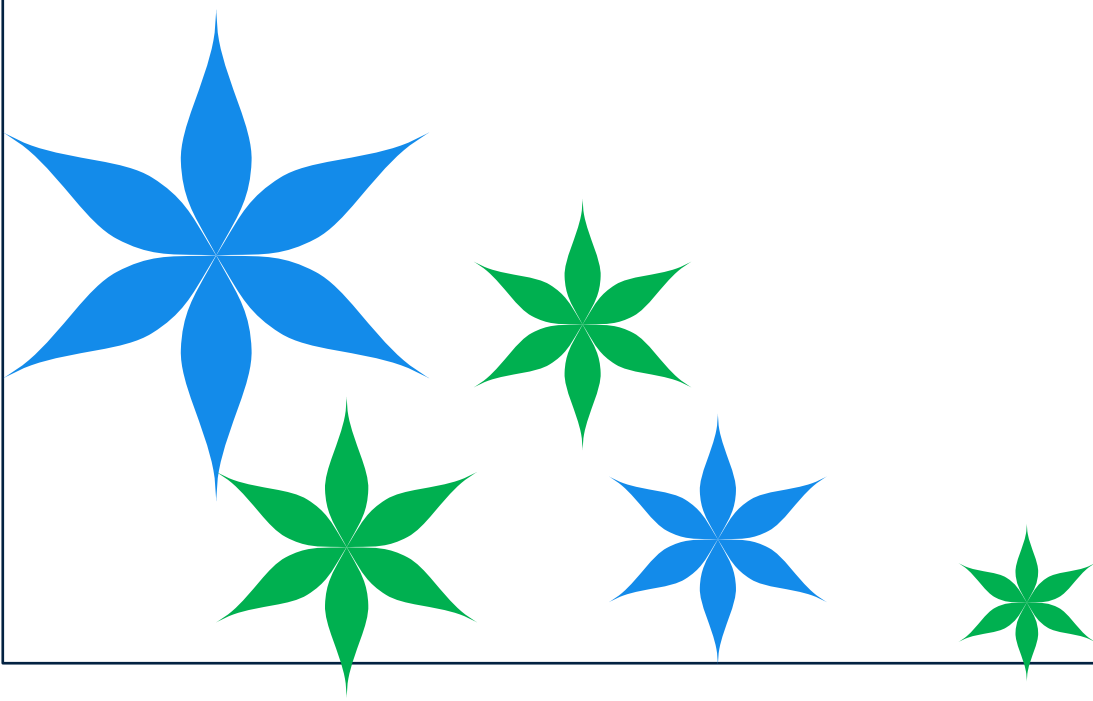*Year of Grant*: 2024

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.

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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 bivariates mod pkand 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-fanin 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).
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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, .
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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)
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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, .

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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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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)

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1. Storrier, K., Vadapalli, A., Lyons, A., Henry, R. Grotto: Screaming fast (2 + 1)-PC for Z2n 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 StructuresCryptology ePrint Archive 2023.

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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

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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)

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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

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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)

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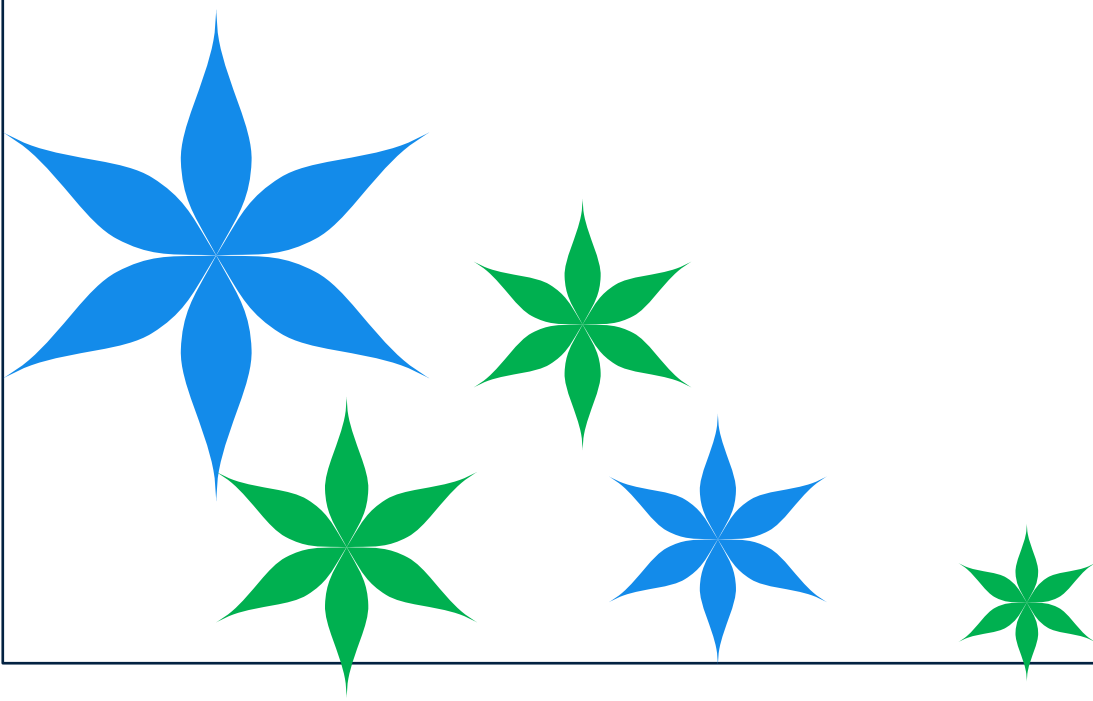
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Invited Talks and Seminars

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 4th 2023

Title: Communication-aware scheduling of precedence-constrained jobs.
Speaker: Dr Rajmohan Rajaraman, Khoury College of Computer Sciences at Northeastern University
Date: August 4th 2023

Title: Testing of Index-Invariant Properties in the Huge Object Mode.
Speaker: Dr Sayantan Sen, NUS Singapore.
 Date: August 8th 2023

Title: Fast Multivariate Multipoint Evaluation over Finite Fields.
Speaker: Dr. Sumanta Ghosh, Caltech University.
Date: September 11th 2023

Title: Heroes Zeros in computational complexity
Speaker: Dr. Anurag Pandey, Saarland University.
Date: November 23rd 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 3rd 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 Hydrabad
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 26th 2024

Title: Spiking Neural Networks: Training and Adversarial Robustness Properties
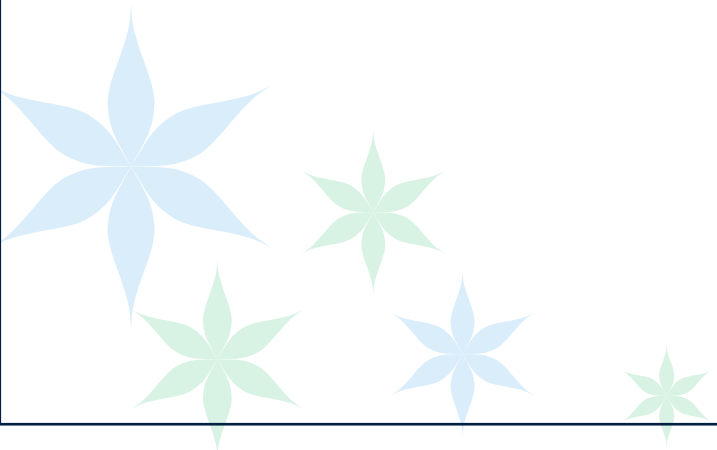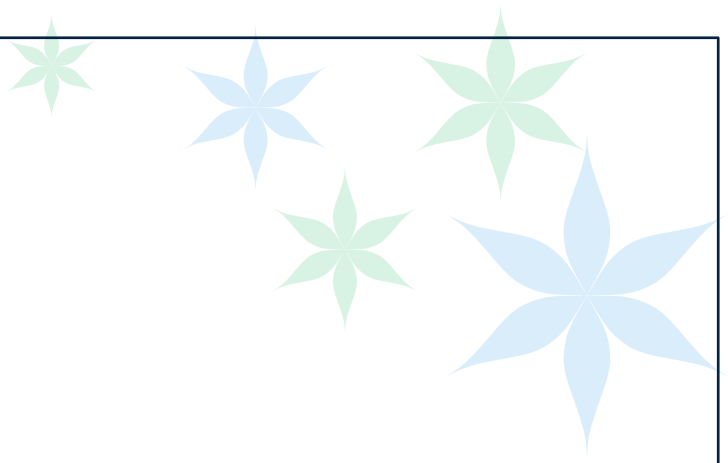Speaker: Dr. Bhaskar Mukhoty , MBZUAI
Date: February 13th 2024

Acknowledgments

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1. Members of the CSE department office team
2. Members of the CSE department lab team
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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