భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

॥ नवोन्मेषेण देशनिर्माणम् ॥



IIT Hyderabad

Department of Computer Science and Engineering

2026 Brochure

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Welcome Message



Kotaro Kataoka
HoD & Professor

Welcome to the Department of Computer Science and Engineering (CSE) at Indian Institute of Technology (IIT) Hyderabad.

Computer Science and Engineering have long pursued a set of demands placed on countless systems: performance, functionality, scalability, security, cost effectiveness, robustness, and rapid recovery from failure. Systems must be reliable and affordable. Today, demands of a very different nature can no longer be ignored. Technology must be safe and accessible for everyone, environmentally sustainable, and designed to foster responsible use. Beyond these, we bear the mission of responsibly steering AI, quantum computing, and the technological breakthroughs that lie ahead of them in the right direction.

Our department aims to create the theories, systems and relevant solutions that meet these demands, to translate them into innovations that transcend disciplinary boundaries and bear fruit as socio-economic value, and to nurture the next generation of researchers and engineers who will carry this work forward. Placing our trust in the scientific curiosity and healthy ambition of our faculty and students, the department will function as a place where we discover problems on our own, devise solutions, and implement them in society.

CSE at IIT Hyderabad strives to remain the finest environment for those who pose their own questions and see their solutions through to reality. Even in an era of rapid change and uncertainty, let us work together with academic, industrial, and governmental partners in India and around the world to build an ever-wider network of colleagues and to create a future full of hope. To students with high aspirations and to researchers with ambitious ideas: we wholeheartedly welcome you to join us.



CSE @ IITH

- A leading CSE department in the country with expertise in Theoretical Computer Science, Data Sciences, and Systems.
- Well-rounded curriculum emphasizing theoretical knowledge and practical skills.
- State-of-the-art labs and research facilities for staying updated with latest technologies.
- Vibrant research culture, interdisciplinary collaborations, and focus on innovative solutions.
- Support for entrepreneurship initiatives and successful startup launches. Priority on industry engagement through internships, guest lectures, and industry- sponsored projects.

Students	258 (B.Tech.), 358 (M.Tech.), 85 (Ph.D.)
Faculty	32 Regular , 1 Honorary faculty , 4 Adjunct faculty
Staff	09

Milestones



2008

B.Tech and M.Tech Programs Begins



2009

First Faculty Member Joins



2010

First Batch of Ph.D. Students Joins



2012

First B.Tech Batch Graduates



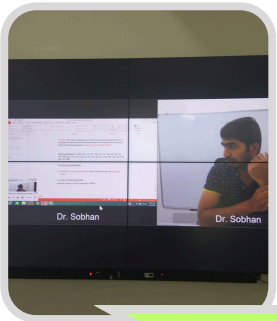
2014

Introduction of Fractal Academics



2015

First Ph.D. Student Graduates



2016

EMDS Begins
IIT Bhilai Mentorship Begins



2018

Central University of Karnataka Mentorship Begins



2019

AI Dept , MDS Begins,
IIIT Raichur
Mentorship Begins



2020

M.Tech. NIS Begins



2024

Move to CSE building

Our Team

Faculty



01 Abhijit Das

Ph.D.: IIT Guwahati
Assistant Professor
Research Interests: Computer Architecture, Systems for AI/ML, and Quantum Computing Systems

https://people.iith.ac.in/abhijit.das/



02 Anupam Sanghi

Ph.D.: Indian Institute of Science Bangalore
Assistant Professor
Research Interests: Database Systems, AI for Databases, Database Testing and Benchmarking

https://anupamsanghi.github.io/



03 Antony Franklin

Ph.D.: IIT Madras
Professor
Research Interests: Mobile Networks, 5G/6G, Mobile Edge Computing and Internet of Things

https://people.iith.ac.in/antony/



04 Ashish Mishra

Ph.D.: IISc Bengaluru
Assistant Professor
Research Interests: Program Verification, Program Synthesis, Programming Languages, Neurosymbolic Programming.

https://aegis-iisc.github.io/



05 Bheemarjuna Reddy Tamma

Ph.D.: IIT Madras
Professor
Research Interests: Wireless Networks, Connected and Autonomous Vehicles, Network Security and Quantum Internet

https://people.iith.ac.in/tbr/

Our Team

Faculty



06 C. Krishna Mohan

Ph.D.: IIT Madras
Professor
Research Interests: Computer Vision and Machine Learning

https://people.iith.ac.in/ckm/



07 J. Saketha Nath

Ph.D.: IISc Bangalore
Professor
Research Interests: Kernel Methods, Statistical Learning Theory and Generative AI

https://people.iith.ac.in/saketha/



08 Jyothi Vedurada

Ph.D.: IIT Madras
Assistant Professor
Research Interests: Compilers, Program Analysis and High-performance computing

https://jyothivedurada.github.io/



09 Kotaro Kataoka

Ph.D.: Keio University
Head and Professor
Research Interests: Internet Architecture and Blockchains

https://people.iith.ac.in/kotaro/



10 M.V. Panduranga Rao

Ph.D.: IISc Bangalore
Professor
Research Interests: Applications of Formal Methods and Quantum Networks

https://people.iith.ac.in/mvp/

Our Team

Faculty



11 Manaswi Paraashar

Ph.D.: Indian Statistical Institute Kolkata
Assistant Professor
Research Interests: Quantum Computing and Computational Complexity Theory

https://sites.google.com/view/manaswi-paraashar/home

12 Manish Singh

Ph.D.: University of Michigan, Ann Arbor
Associate Professor
Research Interests: Social Network Analysis, Recommendation Systems, Data Mining and NLP

https://people.iith.ac.in/msingh/





13 Maria Francis

Ph.D.: IISc Bangalore
Assistant Professor
Research Interests: Computational Algebra, Cryptography: Pairings-based and Lattice, Communication over Blockchains

https://sites.google.com/view/maria-francis

14 Maunendra Sankar Desarkar

Ph.D.: IIT Kharagpur
Associate Professor
Research Interests: NLP, Information Retrieval and Machine Learning

https://people.iith.ac.in/maunendra/





15 N.R. Aravind

Ph.D.: IMSc Chennai
Associate Professor
Research Interests: Algorithms and Graph Theory

https://people.iith.ac.in/aravind/

Our Team

Faculty



16 Nitin Saurabh

Ph.D.: IMSc Chennai
Assistant Professor
Research Interests: Theoretical Computer Science, Classical & Quantum Complexity Theory

https://nitinsau.github.io/

17 Praveen Tammana

Ph.D.: University of Edinburgh
Assistant Professor
Research Interests: Networked Systems, Software Defined Networks and Programmable Data Planes

https://praveenabt.github.io/





18 Rajesh Kedia

Ph.D.: IIT Delhi
Assistant Professor
Research Interests: Computer Architecture, Embedded Systems and Digital VLSI design

https://people.iith.ac.in/rkedia/

19 Rakesh Venkat

Ph.D.: TIFR Mumbai
Assistant Professor
Research Interests: Research Interests: Approximation Algorithms and Complexity Theory

https://people.iith.ac.in/rakeshvenkat/





20 Ramakrishna Upadrasta

Ph.D.: INRIA and University Paris-SUD
Associate Professor
Research Interests: Compilers, Polyhedral Compilation and Program Embeddings

https://people.iith.ac.in/ramakrishna/

Our Team

Faculty



21 Rameshwar Pratap

Ph.D.: CMI, Chennai
Assistant Professor
Research Interests: Compilers, Polyhedral Compilation and Program Embeddings

https://sites.google.com/site/pratapprameshwaryadav/



22 Rogers Mathew

Ph.D.: IISc Bangalore
Associate Professor
Research Interests: Extremal and Probabilistic Combinatorics, Structural Graph Theory and Graph Algorithms

https://people.iith.ac.in/rogers/



23 Sandipan Dandapat

Ph.D.: Dublin City University,
Associate Professor
Research Interests: Multilingual NLP, Responsible AI, LLMs

https://people.iith.ac.in/sdandapat/



24 Sathya Peri

Ph.D.: University of Texas at Dallas, Richardson, TX, USA
Professor
Research Interests: Blockchains, Parallel and Distributed Systems

https://people.iith.ac.in/sathya_p/



25 Saurabh Kumar

Ph.D.: IIT Kanpur
Assistant Professor
Research Interests: Cyber Security, Mobile Security, Cyber Forensics, and Malware Analysis

https://skmtr1.github.io/

Our Team

Faculty



26 Shirshendu Das

Ph.D.: IIT Guwahati
Assistant Professor
Research Interests: Computer Architecture, Hardware Security and Emerging Memory Technologies

https://sites.google.com/view/shirshendudas/home

27 Shibam Ghosh

Ph.D.: University of Haifa
Assistant Professor
Research Interests: Design and cryptanalysis of symmetric-key cryptographic primitives

https://shibamcrs.github.io/





28 Sobhan Babu

Ph.D.: IIT Bombay
Professor
Research Interests: Big Data Analytics, Graph Theory and Algorithms

https://people.iith.ac.in/sobhan/

29 Srijith P.K

Ph.D.: IISc Bangalore
Associate Professor
Research Interests: Machine Learning, Deep Learning, Vision and Language

https://sites.google.com/site/pksrijith/





30 Subrahmanyam Kalyanasundaram

Ph.D.: Georgia Institute of Technology
Professor
Research Interests: Theoretical Computer Science, Graph Theory, Graph Algorithms and Combinatorics

https://people.iith.ac.in/subruk/

Our Team

Faculty



31 Vineeth N. Balasubramanian

Ph.D.: Arizona State University, USA
Professor
Research Interests: Machine Learning, Deep Learning, Computer Vision and Explainable AI

https://people.iith.ac.in/vineethnb/

32 Lakshmi Mandal

Ph.D.: IISc Bangalore
Assistant Professor
Research Interests: Reinforcement learning,Multi-agent learning,Agentic AI and Natural language processing,Stochastic optimization.



Our Team

Faculty

Honorary Faculty



33 C. Siva Ram Murthy

Ph.D.: IISc Bangalore
Visiting Professor
Research Interests: Wireless Networks, Parallel and Distributed Computing

http://www.cse.iitm.ac.in/~murthy/

Adjunct Faculty

34 Kenzo Fujisue

Ph.D.: Waseda University, Tokyo Institute of Technology
Adjunct Professor
Research Interests: Web3 and Cybersecurity Policy

http://www.linkedin.com/in/kenzo-fujisue-005b167a





35 Naveen Sivadasan

Ph.D : Max-Planck Institute for Informatics, Saarbruecken, Germany
Research Interests: Graph Theory and Algorithms

https://people.iith.ac.in/nsivadasan/

Adjunct Faculty

36 Ponnurangam Kumaraguru (IIITH)

Ph.D : Carnegie Mellon University
Adjunct Professor
Research Interests: AI Alignment, Machine / Graph Unlearning, Interpretability, Applied ML / NLP

https://www.iiit.ac.in/faculty/ponnurangam-kumaraguru/





37 Jun Murai

Ph.D.: Keio University
Professor
Research Interests: Information network, Multimedia database,Information security

https://people.iith.ac.in/inst/junmurai/

Distinguished Faculty

Our Team

Department Staff

Technical staff



Jatin Sharma
Technical Superintendent



N. Syamala Rao
Sr.Technical Superintendent



Nikith Reddy Peddasheri
Technician



Praveen Kumar Gaddam
Jr. Technical Superintendent



Shiva Kumar Reddy
Junior Technician



Sunitha Maloth
Technician

Admin Staff



T Vijaya Chakravarthi
Sr.Technical Superintendent



Gandepalli Surya Prakash
Assistant

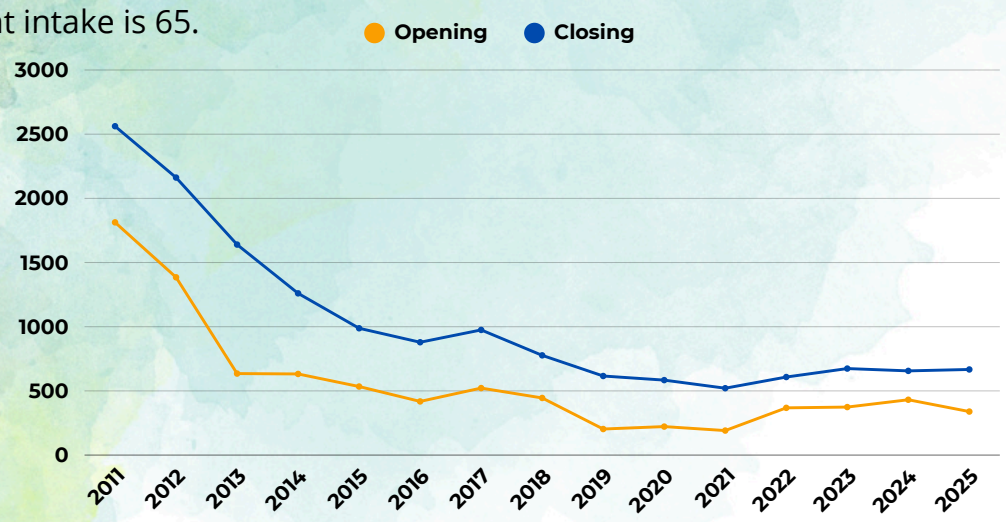


Hannah Daisy
Junior Assistant

Distinguished services and day-to-day departmental activities are overseen by our CSE technical staff and admin staff, with nine dedicated team members handling all related tasks and responsibilities.

B.Tech. In CSE

The B.Tech. Program in the CSE department started in the year 2008 with an initial intake of 40;
The current intake is 65.



JEE ranks over the years

Core courses offered in B.Tech

- **Semester 01**

  Introduction to Programming
  Discrete Mathematics
  Introduction to computing

- **Semester 02**

  Software Development Fundamentals
  Artificial Intelligence

- **Semester 03**

  Data Structures and Algorithms
  Computer Architecture
  Operating Systems I
  DBMS I

- **Semester 04**

  Theory of Computation
  Operating systems II
  Algorithms
  Compilers I
  DBMS II

- **Semester 05**

  Computer Networks
  Compilers II
  Foundations of Machine Learning

- **Semester 06**

  Software Engineering

Course Details

Electives offered in the Last 5 Years

Systems

- Advanced Computer Architecture
- Advanced Computer Networks
- Advanced Compiler Optimisations
- Advanced Operating Systems for Pervasive Computing
- Basics of Blockchains: Distributed Computing Perspective
- Compiler Optimizations
- Computer and Network Security
- Concurrency Control in Transactional Systems
- Data Center Networking
- Distributed Computing
- Distributed Systems
- Hardware Architecture for Deep Learning
- Introduction to Wireless Networks
- Network Engineering
- Networked Wireless Systems
- Parallel and Concurrent Programming
- Software Defined Networking
- Topics in Compiler Optimizations
- The Blockchain: Theory and Practice
- Wireless Networks and Security

AI, ML and Data Science

- Advanced Topics in Data Management
- Algorithmic Techniques for Massive Data
- Bayesian Data Analysis
- Computational Topology: Theory and Applications to Data Analysis
- Computer Vision
- Data Mining
- Deep Learning for Vision
- Introduction to Statistical NLP
- Neural Networks
- Numerical Linear Algebra for Data Analysis
- Pattern Recognition
- Predictive Analytics and Knowledge Discovery
- Probabilistic Models for Machine Learning
- Soft Computing
- Text Processing and Retrieval
- Visual Recognition
- Visual Computing
- Multimedia Content Analysis
- Natural language Processing
- Topics in NLP

Theory

- Algebra for Computer Science
- Analysis of Boolean Functions
- Applications of Markov Chains
- Approximation Algorithms
- Circuit Complexity
- Communication Complexity
- Computational Complexity
- Computational Number Theory and Algebra
- Convex Optimization
- Cryptography
- Topics in Theoretical Computer Science
- Formal Methods in Computer Science
- Topics in Combinatorics
- Linear Optimization
- Probabilistic Model Checking
- Probability in Computing
- Quantum Computing
- Quantum Cryptography
- Sketching and sampling for massive data
- Tensors: Techniques, Algorithms and Applications
- Algorithmic Techniques for Large Graphs

Full-time M.Tech. Programmes

01 M.Tech. in CSE

- Started in the year 2008
- 24 Credits of course work
  - Option A: + 24 Credits of Thesis
  - Option B: +12 Credits of Capstone project + 9 Credits of Course work
- 2 Years M.Tech program
  - MoE Sponsored
  - Self Sponsored
- 3 Years M.Tech.program (Option A)
  - Project Sponsored

Courses offered

- Advanced Data Structures and Algorithms
- At least two electives each from:
  - Data Science
  - Systems
  - Theory

02 M.Tech in Network and Information Security

- Started in the year 2008
- 24 Credits of course work + 24 credits of thesis
- 2 Years M.Tech program
  - MoE Sponsored
  - Self Sponsored
- 3 Years M.Tech.program
  - Project Sponsored

Courses offered

- Advanced Data Structures & Algorithms
- Advanced Computer Networks
- Cryptology
- Topics in Wireless Networks
- Internet of Things
- Wireless Networks & Security
- Topics in Networks
- Networked Wireless Systems
- Advanced topics in Cryptology
- Quantum Cryptography
- Basics of Blockchains: Distributed Computing Perspective
- Software Defined Networks
- Data Center Networking
- Applied Machine Learning
- The Blockchain: Theory and Practice

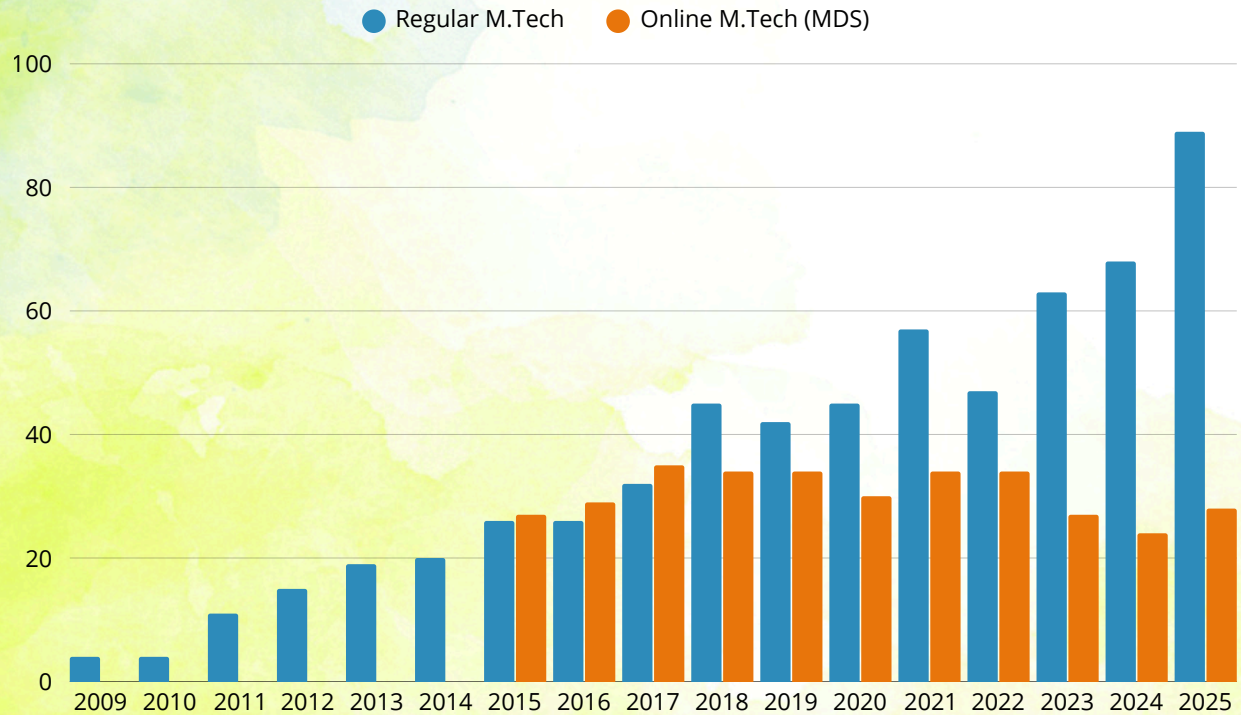
Online M.Tech. programme

03 M.Tech. in Data Science

- Online M.Tech. programme for **working professionals**
- Started in the year 2015 as an Synchronous lectures program
- Exclusively for working professionals
- Self-paced course:3-4 years
- 24 Credits of course work + 24 credits of capstone project
- Executive M.Tech. in Data Science (EMDS) degree with 24 credits of coursework

Courses offered

- Mathematical Foundations of Data Science
- Image and Video Analytics
- Foundations of Machine Learning
- Applied Machine Learning
- Probabilistic Models for Machine Learning
- Bayesian Data Analysis
- Theory of Learning and Kernel Methods
- Topics in NLP
- Information Retrieval
- Deep Learning
- Programming Models for Multi-core and GPU Architectures
- Scaling to Big Data
- Internet of Things



M.Tech Intake

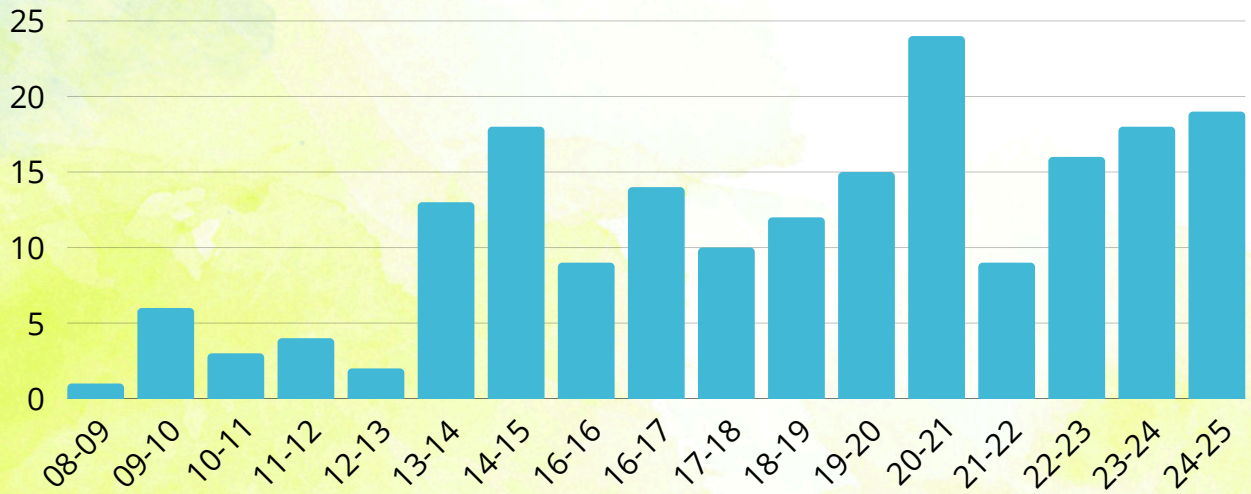
Academics

Ph.D. Program

- 12 credits of course work
- 24 credits for direct Ph.D. Program
- Core Course: Advanced Data Structures and Algorithms
- Comprehensive Exam
- Research Proposal Seminar

Stream-wise Distribution Of Scholars

Stream	Graduated Students	Current Students
Theory	7	17
Systems	28	44
AI / Machine Learning	38	29



Year Wise PhD Intake

Academic Highlights

Firsts

- First Online M.Tech. Program for Data Science in the country
- Seeding of the first AI department and AI undergraduate program in the country

Institute Teaching Awards for Department Faculty

- Maunendra Desarkar
- C Krishna Mohan
- Karteek Sreenivasaiah
- Vineeth N Balasubramanian
- Rakesh Venkat
- Rogers Mathew
- Praveen Tammana
- Bheemarjuna Reddy Tamma

Institute Research Excellence Awards

- C Krishna Mohan
- Vineeth N Balasubramanian

Joint PhD Programs

- Swinburne University, Australia
- Deakin University, Australia
- IDRBT, Hyderabad

National Awards to Teachers (NAT) 2025 by Dept. of Higher Education

- Vineeth N Balasubramanian

Research

Broad Research Areas



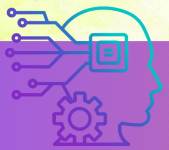
01 Theory

- Algorithms
- Computational Complexity
- Graph Theory
- Combinatorics
- Formal Methods
- Quantum Computing



02 Systems

- Wireless Networks
- Computer Networks
- Compilers
- Computer Architecture
- Distributed Systems
- Blockchains
- Cyber Security
- Database Systems



03 AI/ML & Data Science

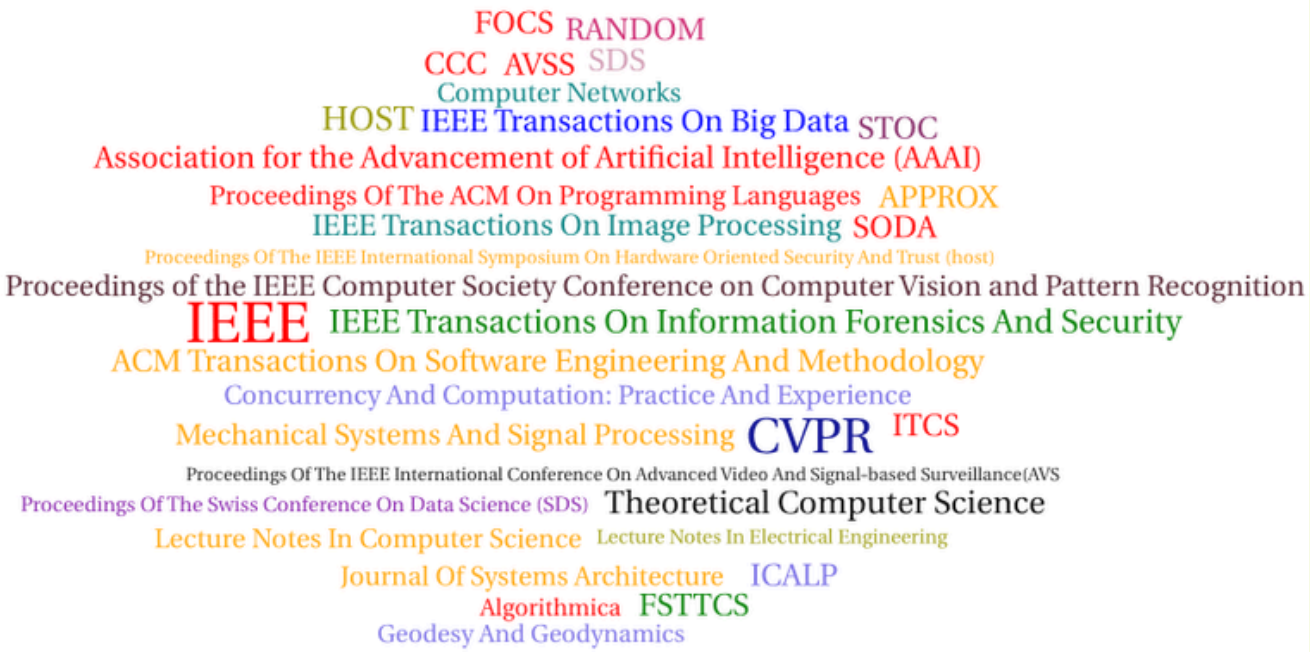
- Big Data
- Computer Vision
- Natural Language Processing
- Social Media Analytics
- Theoretical AI/ML
- Applications

Publications

Publications

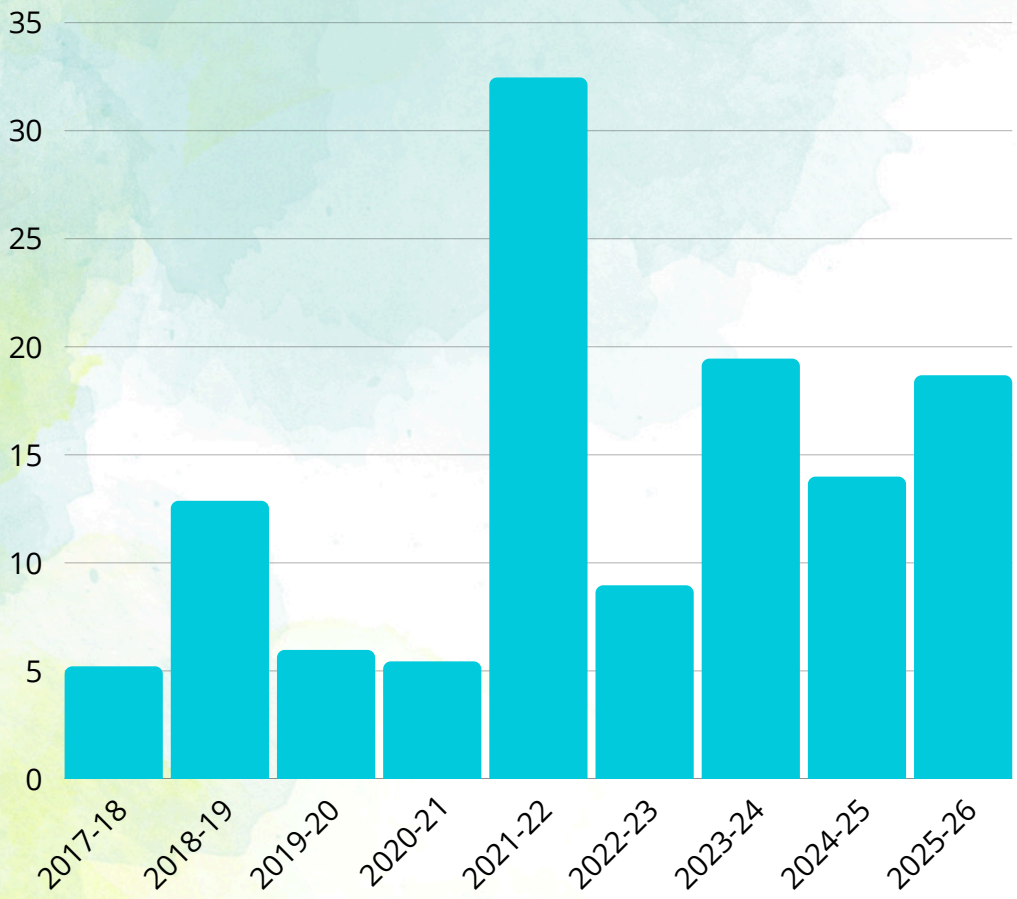
The department maintains a strong research momentum with **800+ publications** in the last 7 years (Source: DBLP). These contributions span reputable journals and conferences, demonstrating consistent scholarly impact and active participation in global research communities. This achievement underscores our commitment to advancing knowledge, fostering innovation, and supporting high-quality research.

Venues



Project Funding

Year-Wise Funding (in Crores)



Some Funding Agencies

iNSERB DIA

DRDO DEFENCE R&D ORGANISATION MINISTRY OF DEFENCE

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

सी डैक CDAC

NSCS
NATIONAL SECURITY COORDINATION SECRETARIAT

Collaborations

We take pride in fostering a culture of global collaboration and academic excellence. These partnerships have enabled us to engage in impactful research projects.

National Collaborations

International Collaborations

Industry Collaborations

Awards and Recognitions

Scientific Awards and Recognitions

Best/Distinguished Paper Awards

- ICDCIT-2025 conference held at KIIT, Bhubaneswar
- European Conference on Object-Oriented Programming (ECOOP), 2025
- International Conference on Communication Systems and Networks (COMSNETS), 2022
- ACM Joint International Conference on Data Science & Management of Data (CODS-COMAD), 2022
- ACM SIGPLAN International Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA), 2021
- Workshop on Causality in Vision, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- International Computing and Combinatorics Conference (COCOON), 2020
- International Workshop on Graph-Theoretic Concepts in Computer Science (WG), 2020
- IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2018
- International Conference on Communication Systems and Networks (COMSNETS), 2018
- International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2018
- ACM SIGCOMM Symposium on SDN Research (ACM SDN), 2018
- International Conference on Networked Systems (Netys), 2018
- IEEE International Telecommunication Networks and Applications Conference (ITNAC), 2016

Competitive Research Grant Awards

- Sony Research Award
- Qualcomm Faculty Award
- AMD Faculty Award
- Microsoft Academic Partnership Grant Award
- Google exploreCSR Grant Award
- Google Research Scholar Award
- IBM Shared University Research Award
- Verisk AI Faculty Research Award
- IBM Research Academic Award

Other Research Awards

- iKDD Outstanding Doctoral Dissertation Award, 2022
- Senior Membership in AAAI (one of 15 globally selected), 2023
- Best Reviewer Awards, IJCAI 2023, ICLR 2021, ECCV 2020, CVPR 2019, OOPSLA 2019
- NASSCOM AI Gamechangers Award (DL Algorithms/Architecture category), Winner and Runner-up, 2022

Awards and Recognitions

Academic Awards and Distinctions

Visiting Fellowships

- Fulbright-Nehru International Education Administrators Seminar Fellowship, 2023-2024
- Mottez Fellowship (Host: Institute Henri Poincare, Paris, France), 2023
- Fulbright-Nehru Academic and Professional Excellence Fellowship (Host: Carnegie Mellon University, Pittsburgh, USA) 2022-23
- Visiting Scholarship, Erasmus Mundus - PIXNET (Host: Scuola Superiore Sant'Anna, Piza, Italy), 2020-22
- ASEM Duo Fellowship (Host: Sorbonne University, Paris, France), 2020

PhD Fellowships obtained by Students

- Google Ph.D. Fellowship
- TCS Ph.D. Fellowship
- Intel Ph.D. Fellowship
- Reliance Foundation Fellowship
- PMRF Fellowship
- Microsoft Research India PhD Award
- Qualcomm Innovation Fellowship

Awards obtained by Students

- IDRBT Doctoral Colloquium
- Indo-Canadian Shastri Student Research Fellowship
- S N Bose Fellowship
- Honda YES Fellowship
- Viterbi Fellowship
- Google AI Residency
- Facebook AI Residency
- Fulbright-Nehru doctoral research fellowship
- Suzuki Foundation Fellowship

R & D Infrastructure

Research Labs and Centers

Center for Cryptography and Cybersecurity

The center aims to be a premier hub for cryptography and cybersecurity research in India. The main areas of focus are in the following fields a) theoretical and applied cryptography, b) symmetric key cryptography and cryptanalysis, c) network security, d) privacy-preserving mechanisms, e) post-quantum cryptography, and f) quantum cryptography. The center conducts research in cutting-edge technologies as well as engages in the training of students and professionals in these areas. The center offers long-term and short-term research positions at the postdoc, PhD, masters (M.Tech RA), predoc, intern levels. The center also offers various training programs, workshops, and boot camps for experienced professionals, undergraduate and graduate students.
For more details , Please visit at : https://ccs.iith.ac.in/





Data Acceleration and Offload Research Facility (In collaboration with Marvell India Private Limited)

A platform for interdisciplinary research in emerging fields like AI/ML, Accelerated computing, Advanced encryption algorithms, and Network acceleration, paving the way for the next generation of technological innovation.





R & D Infrastructure

Research Labs and Centers

NeWS Lab

- Networked Wireless Systems Group
- Research Areas:
  - 5G Test bed, Converged Cloud RAN, 5G: Multi-access Edge Computing, Intelligent Transportation Systems: 5G NR V2X, C-V2X, AI for Cybersecurity
  - Open Radio Access Networks (O-RAN), 6G, XR/Teleoperation over Wireless, AI/ML for resilient and secure networks
- https://newslab.iith.ac.in/

PRANET

Practical Networking and Blockchain

- Research Areas:
  - Blockchain
  - Software Defined Networking Digital Twin Networks
- https://pranet.iith.ac.in/

Compilers Lab

- Scalable Compilers for Heterogeneous Architectures Group
- Research Areas:
  - Polyhedral Compilation Code Compliance & Security Machine Learning for Compilers
- https://compilers.cse.iith.ac.in









R & D Infrastructure

Research Labs and Centers

Natural Language and Information Processing (NLIP)

- Responsible NLP: Multilinguality and Low-resource languages, Hate Speech Detection
- Controlled Language Generation
- Large Language Models

Industry Collaborations with Microsoft, Honeywell, Accenture, and several startups.

- https://nlip-lab.github.io/nlip/





VIGIL Lab

- Visual Learning and Intelligence
- Research Areas:
  - Vision for Autonomous Driving, Security for Machine Learning
  - Medical Imaging Segmentation, Radar Navigation using ML ML for Domain Adaptation



Machine Learning and Vision Group

- Exploring Connections between Adversarial Robustness and Explain ability (Google Research Scholar Award, Microsoft Research Postdoctoral Research Grant)
- Learning with Weak Supervision for Autonomous Vehicles (Funded by Intel and SERB IMPRINT program)
- Explainable Deep Learning (Funded by Adobe)
- Deep Generative Models: Going Beyond Supervised Learning (Funded by Intel)
- https://lab1055.github.io/team/

R & D Infrastructure

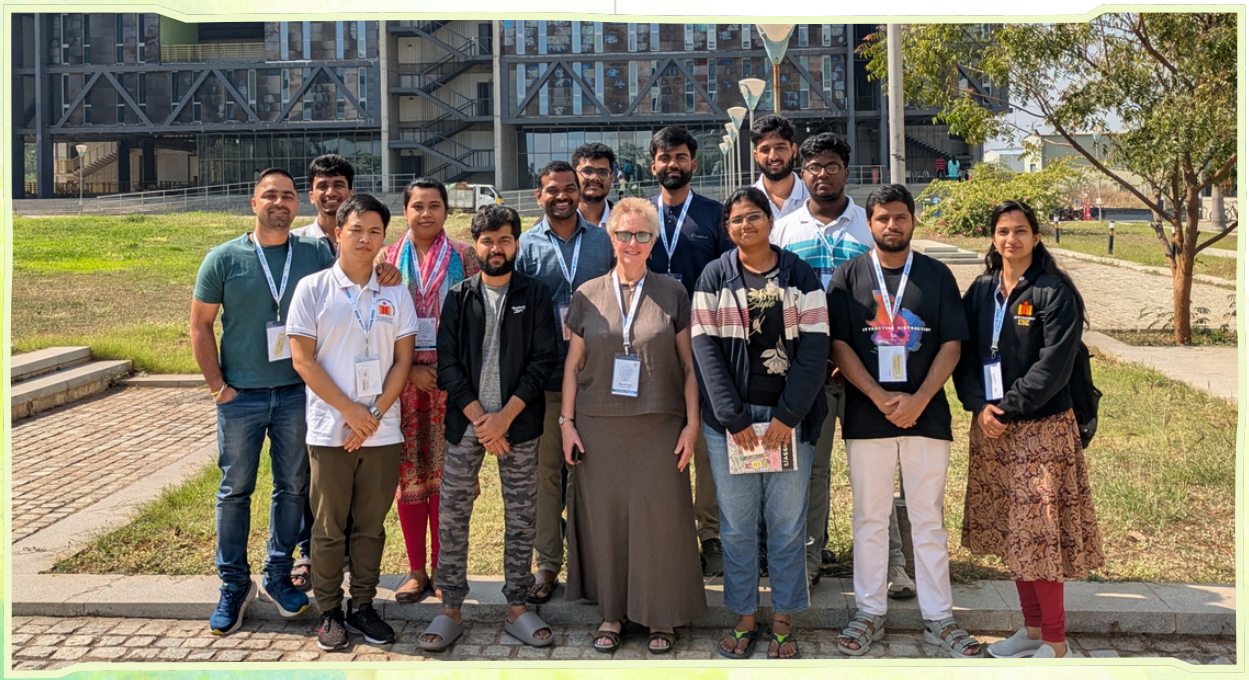
Research Labs and Centers

Bayesian Reasoning And Inference (BRAIN)

- Research group works on probabilistic machine learning and deep learning models to solve problems arising in the domain of artificial intelligence such as natural language processing and computer vision.
- Advances in AI by developing learning algorithms based on Deep learning, large language models, Bayesian learning, continual learning, causal learning, multimodal learning, stochastic processes and differential equations
- https://sites.google.com/view/brainiith/home

NETX

- Networks Research Group
- Research Domain: AI, Systems, Networks, and Security
- Key terms: Distributed AI Learning and Serving, Networked Robotics, GPU-centric Packet Processing, Software-Defined Networking, Programmable Data Planes (P4, eBPF, DPUs, PISA switch)
- https://www.netxiith.in/



Teaching Labs

The CS-109 and CS-209 Teaching Labs are modern computing facilities equipped with essential software tools to support programming courses, academic labs, projects, and hands-on technical training. They offer a flexible environment for coding, debugging, and real-time project development, and are frequently used for workshops, competitions, and demonstrations.

Teaching Lab #1 (CS-109)



Teaching Lab #2 (CS-209)





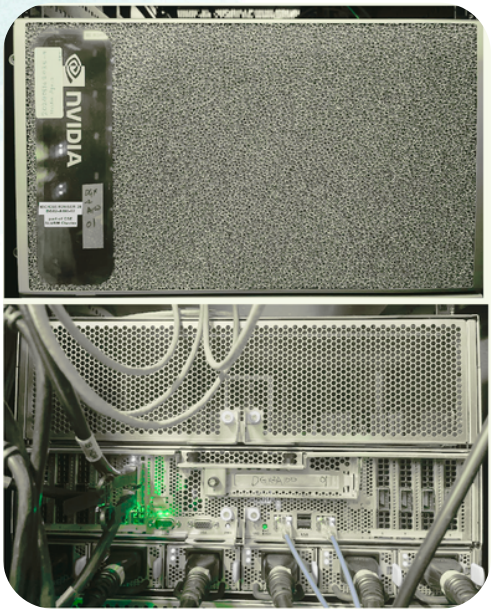
ICT Infrastructure

Cluster & Undercloud

High-Performance Computing (HPC) – SLURM-Managed Cluster

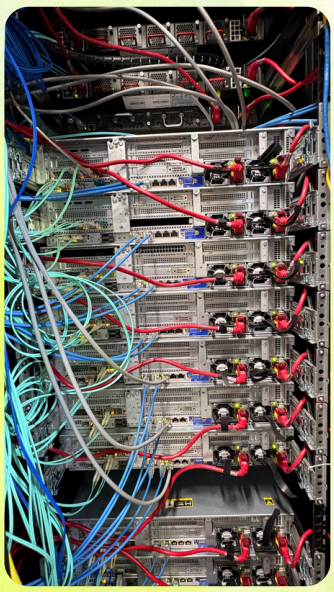
The CSE Department operates an in-house SLURM-managed High-Performance Computing environment designed to support compute-intensive academic and research workloads at scale. The architecture combines accelerator-enabled compute nodes with a high-capacity CPU layer and shared server infrastructure, providing a unified platform for research, experimentation, and advanced computational development.

- Accelerator-rich compute fabric supporting deep learning, NLP, and large-scale simulations
- Enterprise-grade job scheduling ensuring fair sharing and optimal utilization of resources
- Unified execution environment spanning HPC and standalone research servers
- Support for development, experimentation, and production-scale runs
- Designed for research reproducibility and long-running workloads



Cloud Infrastructure Management

OpenStack OverCloud (CSE Self-Service Private Cloud)



The CSE Department operates an in-house OpenStack-based self-service private cloud that unifies compute, networking, and storage into a single on-demand platform with centralized LDAP-based authentication. The environment enables users to quickly provision isolated virtual machines for testing, code execution, testbed creation, development, and simulation through a controlled self-service interface.

- Rapid VM provisioning without administrative dependency
- Isolated project environments for safe experimentation and testing
- Integrated compute, network, and storage stack under a single platform
- Self-service access with centralized identity management

ICT Infrastructure

Cluster & Undercloud

MAAS UnderCloud (Bare-Metal Provisioning)

The department leverages Metal-as-a-Service (MAAS) to automate bare-metal server provisioning and infrastructure lifecycle management. MAAS enables physical servers to be deployed, reconfigured, and managed with cloud-like efficiency, supporting dynamic infrastructure expansion and operational consistency.

- Zero-touch bare-metal provisioning with rapid OS deployment
- Automated disk and network configuration across physical nodes
- Centralized hardware health and lifecycle management
- Cloud-style control of physical infrastructure

Storage Infrastructure (NAS, Ceph & Lustre)



The CSE Department operates a >500 TB hybrid storage infrastructure built on SSD–HDD platforms to support coursework, research datasets, module hosting, and backup services. The storage stack integrates ZFS, Ceph, and Lustre file systems to deliver reliable, scalable, and high-performance data access across academic, cloud, and HPC workloads, with seamless integration across compute environments.

- Enterprise-grade data reliability with redundancy, replication, and fault tolerance
- Parallel I/O performance optimized for simulations and large-scale dataset processing
- Unified storage access across HPC, private cloud, and standalone servers
- Advanced data management features including snapshots, quotas, and seamless migration.

High-Speed Networking Infrastructure



The CSE Department operates a high-speed, multi-tier internal network built on 1G/10G/40G/100G interconnects, forming a resilient backbone that tightly couples compute and storage resources. The architecture is designed to deliver low-latency communication and high-throughput data movement, enabling efficient execution of HPC workflows and data-intensive research applications across the department's ICT ecosystem.

- High-bandwidth backbone optimized for compute–storage convergence
- Low-latency network fabric supporting parallel and distributed workloads
- Efficient traffic handling for sustained high-throughput data transfers
- Scalable network design aligned with future infrastructure expansion

Societal Impact

Projects with Societal Impact

Live Analysis of UPI Payments in NPCI:

Data mining-based live analysis of UPI payments in collaboration with the National Payments Corporation of India (NPCI). We are proud to be a part of one of the most exciting contributions of India towards the world's digitization.

Analyzing and Improving Urban Transportation:

The M2Smart (Smart Cities for Emerging Countries based on Sensing, Network and Big Data Analysis of Multimodal Regional Transport System) is a joint research project under Japan's SATREPS program between IIT Hyderabad, Nihon University, Japan, Nagoya Electric Works Co. Ltd, Tokyo Institute of Technology, and Ahmedabad Municipal Corporation (AMC). The project looked into development of technologies for collecting, processing, modelling and providing traffic information in the IITH campus using various sensing technologies,wireless communication technologies and big data processing techniques, developed by various approaches in the testbed, generated by integrating these technologies. It also considered the system to promote multimodal by providing traffic information to users and at the same time to improve traffic management, and confirm policies to implement this system socially through field experiments in Ahmedabad city. This project installed sensors and monitored traffic-related parameters near IIT Hyderabad campus and in Ahmedabad city longitudinally, and made several contributions to improving traffic flow in both these urban areas. Vision-based systems to detect unique traffic violations and road crimes (such as wearing of helmet and chain-snatching) were also developed.

Disaster Management Systems:

As one of the earliest efforts in the unique Indo-Japan partnership manifested in IIT-Hyderabad, the DISANET (Information Networks for Natural Disaster Mitigation and Recovery) project focused on mitigating the after-effects of natural disasters. This project resulted in the development of web portals and apps to mitigate disaster aftereffects and enable quick recovery and support. Our faculty's social media aggregator was also used during the Kerala floods of 2018 to collate resources and support for the flood victims.

Societal Impact

Projects with Societal Impact

Towards 5G,V2X, and Beyond:

Our faculty members are involved in the “Indigenous 5G Testbed” project funded by Dept. of Telecom (DoT), Govt. of India and "V2X Pilot Study" project funded by Suzuki Motor Corporation, Japan. Various network functions of 5G Core network are developed as per 3GPP specifications with network intelligent for delivering highly available, reliable, resilient, and secure slice services for diverse use cases of 5G and beyond. The IITH 5G Core is also tested for interoperability with both in-house and open-source 5G base stations and smartphones. Vehicles fitted with Vehicle-to-anything (V2X) radios and ITS apps are used to demonstrate various benefits of ITS technology for road users in India.

Data Science for Agriculture:

Our faculty members have also been involved in an Indo-Japan multi-institutional collaboration to collect, analyze and deploy data science-based technology solutions for agriculture. This effort, which includes the P Jaishankar Telangana State Agricultural University, has resulted in a longitudinal collection of sensor data in rice paddy and maize farms with different genotypes and phenotypes. We have also actively contributed to the AI for Agriculture challenge organized by NASSCOM and the Telangana government.

Academic Information Management System:

The Academic Information Management System (AIMS) system that ran IIT-Hyderabad's ecosystem including academics, reporting, human resource management and infrastructure management for a large part of the last decade, was a home-grown software created by a CSE faculty from design to deployment as part of an entrepreneurial effort. Not to forget, this system has also been deployed at other academic institutions across the country!

Tax Fraud Analytics:

Live ongoing implementation of data science-based methods to analyze taxation data, and highlight cases of potential fraud. This effort has led to savings of over several crores of rupees to the state exchequer.

Conferences and Workshops

Conferences and Workshops Organised

- Cryptology Conclave 2026
- Faculty Updation Program (FUP) on Wireless Security 2025
- AI on ARM workshop 2025
- IITH - Marvell AI/ML Networking & Infrastructure Workshop 2025
- Research Opportunities in Computer Architecture (ROCA) – 2025
- Faculty Updation Program (FUP) on Wireless Security under ISEA Phase III 2025
- National Bootcamp on Wireless Security 2025
- 26th International Conference on Distributed Computing and Networking (ICDCN) – 2025
- Harnessing AI for Healthcare Transformation – An Indo-US Workshop 2024
- Intel Unnathi AI everywhere 2024
- ACM-W India Grad Cohort 2024
- ACM ROCS 2024
- ACM India Summer School on Programming Language Analysis and Optimisations, Hosted by: IIT Hyderabad (online)
- ACM India Summer School on Algorithmic Techniques in Computational Biology, Jun 2023 (held at IIT-Hyderabad)
- General Co-chair and organizers of Asian Conference on Machine Learning, Dec 2022, Hyderabad (first ACML to be brought to India)
- The 6th International CALDAM 2020 at IIT-Hyderabad, Feb 2020
- Lead co-organizers of CSE and AI tracks in Vaibhav Summit (an effort of NITI Aayog invited global experts to discuss on promoting research in India), Oct 2020
- VAIBHAV Summit 2020 CPS Vertical
- TEQIP program on Advanced Algorithms between November–December 2020
- INDOQUANT 2019
- FM Update 2019
- IndoSys 2018
- General Co-chairs and Program Co-chairs of National Conference on Communications (NCC), Mar 2018 (held at IIT-Hyderabad)





Recent Outreach events

ICDCN 2025

The Department of Computer Science and Engineering, IIT Hyderabad successfully hosted the **26th International Conference on Distributed Computing and Networking (ICDCN 2025)** from January 4–7, 2025. The conference brought together researchers and practitioners from academia and industry to present and discuss cutting-edge work in the areas of Distributed Computing and Communication Networks.

The event featured keynote talks by leading experts including Allan Borodin (University of Toronto, Canada), Ness B. Shroff (The Ohio State University, USA), Idit Keidar (Technion, Israel), Dilip Krishnaswamy (C-DOT, Bangalore, India), and Kiran Kuchi (IIT Hyderabad), covering a wide range of foundational and applied research themes.

The conference witnessed enthusiastic participation from a global community of researchers, students, and professionals.



Recent Outreach events

ROCA 2025

The Department of Computer Science and Engineering, IIT Hyderabad successfully organized a national level workshop "**Research Opportunities in Computer Architecture** (**ROCA 2025**)", held from 11–15 July 2025 at the Department of CSE, IIT Hyderabad, and sponsored by **Intel Corporation**.

This five-day workshop aimed to inspire students, faculty, and professionals to pursue advanced research in processor design, system architecture, and semiconductor innovation. It brought together experts from top academic institutes and industry for a vibrant exchange of ideas through technical talks, hands-on sessions, and personalized mentorship.

The workshop drew enthusiastic participation from across India, fostering a strong community of learners and researchers in the field of computer architecture. Participants explored emerging topics, engaged with domain experts, and gained hands-on experience that will shape their future research and career trajectories.



Recent Outreach events

A Bootcamp on Wireless Security under ISEA Phase -3

The Bootcamp on Wireless Security under ISEA Phase III, held from 27 January to 1 February 2025 at the Department of Computer Science & Engineering, IIT Hyderabad, was a six-day intensive program aimed at strengthening participants understanding of wireless network security, vulnerabilities, and real-world attack scenarios.

With Dr. Bheemarjuna Reddy Tamma, Professor, CSE, IIT Hyderabad, as the lead coordinator, the bootcamp combined strong theoretical foundations with hands-on training on Wi-Fi security protocols (WEP, WPA, WPA2, WPA3), network attacks, cryptography, and industry-standard tools such as OpenSSL, Wireshark, Burp Suite, and Aircrack-ng, along with applied case studies on malware analysis and detection for mobile devices. The program was enriched by expert mentorship from Dr. Maria Francis (IIT Hyderabad), Dr. Saurabh Kumar (IIT Hyderabad), Dr. Srikanth S (NanoCell Networks Pvt. Ltd.), and Mr. Nadeem Akhtar (HFCL), providing participants with valuable academic and industry perspectives.











Recent Outreach events

Faculty Updation Program (FUP) on Wireless Security - Feb 2025

The Faculty Updation Program (FUP) on Wireless Security under ISEA Phase III, held from 18 to 22 February 2025 at the Department of Computer Science & Engineering, IIT Hyderabad, was a five-day intensive program designed to empower educators and researchers with advanced knowledge and practical expertise in wireless security, malware analysis, and critical infrastructure protection. The program focused on enhancing teaching methodologies through real-world case studies, strengthening hands-on skills in network security, cryptography, secure Wi-Fi configuration, malware analysis, and protection of critical infrastructures, while fostering research-oriented learning in cybersecurity domains.

With Dr. Bheemarjuna Reddy Tamma, Professor, CSE, IIT Hyderabad, as the lead coordinator, the program featured expert sessions and mentorship from Prof. Kotaro Kataoka (IIT Hyderabad), Dr. Maria Francis (IIT Hyderabad), Prof. Sandeep K. Shukla (IIT Kanpur), Dr. Saurabh Kumar (IIT Hyderabad), and Mr. Shibashis Ghosh (Founder, ExaBee Pvt. Ltd.), bringing together strong academic and industry perspectives to promote innovation, collaboration, and capacity building in wireless and cyber security education and research.













Recent Outreach events

Faculty Updation Program (FUP) on Wireless Security - Dec 2025

The Faculty Updation Program (FUP) on Wireless Security 2025 under ISEA Phase III was held from 1 to 5 December 2025 at the Department of Computer Science & Engineering, IIT Hyderabad as a five-day intensive program aimed at strengthening knowledge and practical expertise in wireless security, malware analysis, and critical infrastructure protection. The program covered recent advances in wireless security, vulnerabilities in Wi-Fi protocols (WPA2/WPA3), and real-world mitigation strategies, complemented by hands-on laboratory sessions using tools such as OpenSSL, Wireshark, Burp Suite, Zeek, and Aircrack-ng.

The program featured expert instruction from Prof. Bheemarjuna Reddy Tamma, Prof. Kotaro Kataoka, Dr. Maria Francis, Prof. Antony Franklin, and Dr. Saurabh Kumar (IIT Hyderabad), along with industry perspectives from Dr. Srikanth S (NanoCell Networks, Bengaluru) and Mr. Shibashis Ghosh (ExaBee India Pvt. Ltd.), fostering meaningful academic–industry interaction and capacity building in wireless security.



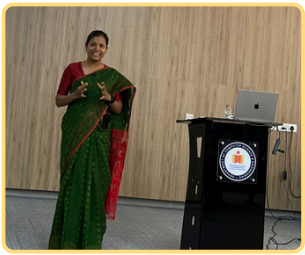
Recent Outreach events

Cryptology Conclave - 2026

The **Cryptology Conclave 2026** was hosted at IIT Hyderabad on January 22–23, 2026, bringing together experts, researchers, and students working in the domains of cryptography and cybersecurity. A dedicated Workshop on Secure Distributed Systems was conducted prior to the conclave, introducing key concepts related to secure architectures, communication protocols, and distributed trust models. The conclave featured multiple Expert Talks delivered by distinguished faculty and researchers from premier institutions across India, covering themes such as post-quantum cryptography, blockchain security, symmetric and public-key cryptography, and secure computation. In addition, a Student Poster Colloquium provided a platform for young researchers to present their work, with previously published or accepted results also welcomed. The event facilitated active academic engagement, knowledge exchange, and collaboration within the cryptography community.

The conclave was organized by the **Center for Cryptography and Cybersecurity,** Department of Computer Science and Engineering, Indian Institute of Technology Hyderabad.



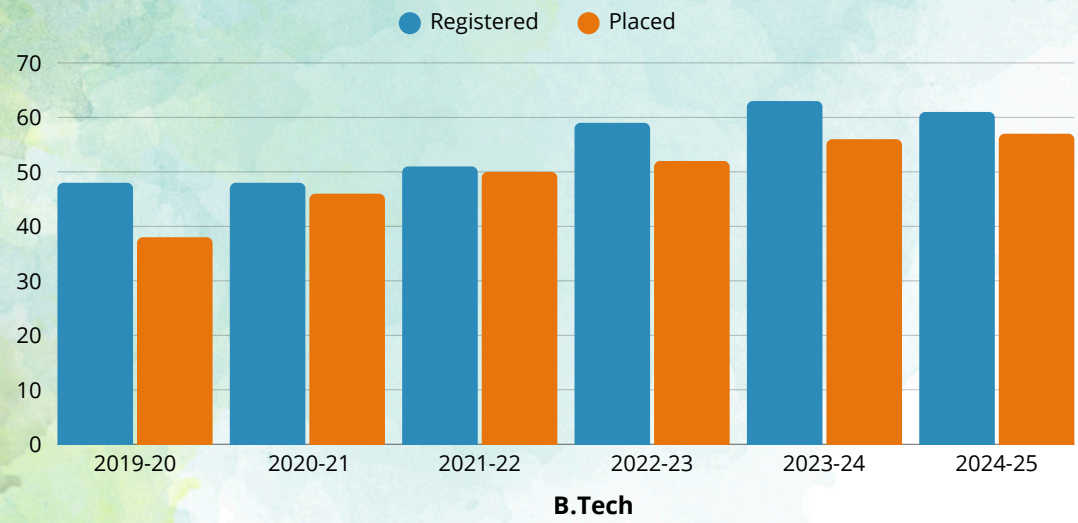





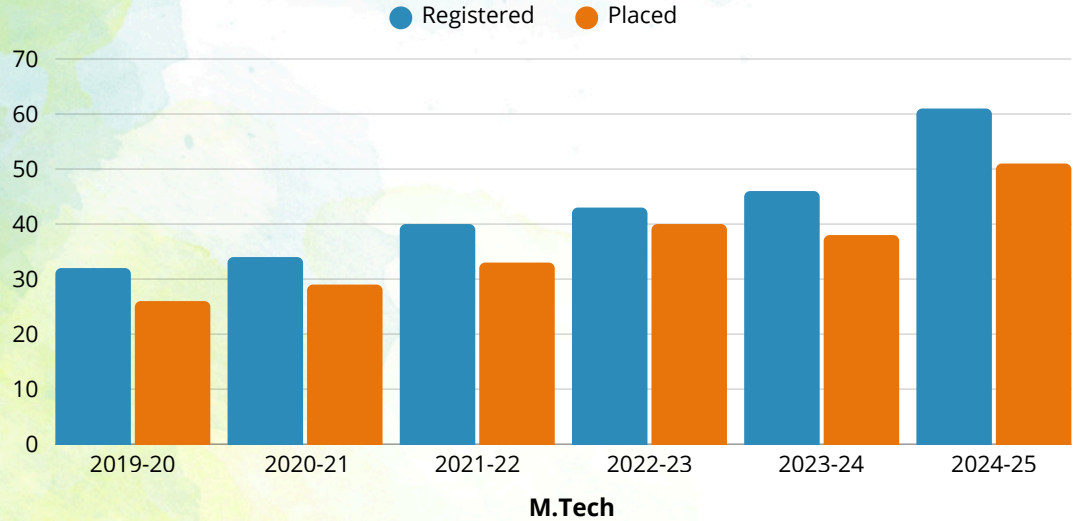


Placements

Details of Students Registered and Placed



B.Tech



M.Tech

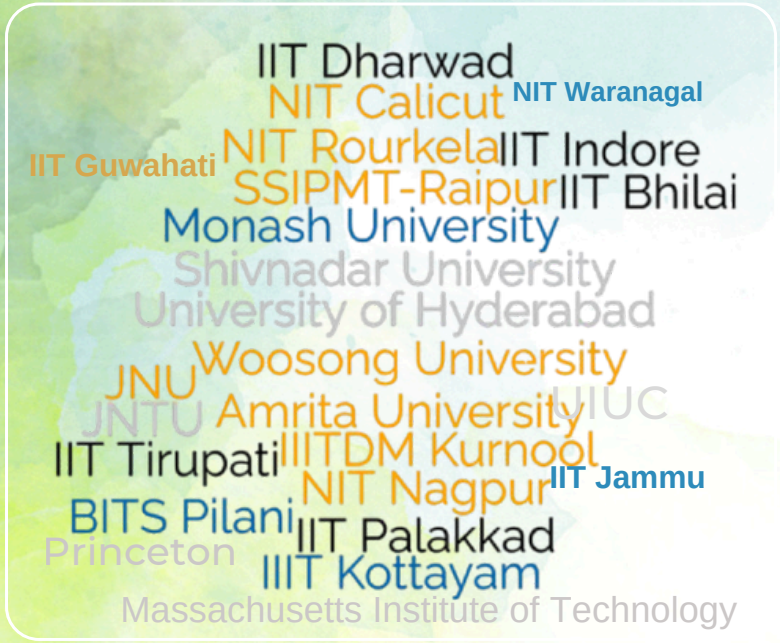


PAST RECRUITERS

Alumni

Our Ph.D. Graduates have gone on to remarkable affiliations, showcasing the impact of their research and the quality of education they received at our institution. Here are some of the notable affiliations of our graduated Ph.D. students.

Alumni in Academia



Alumni in Industry



Alumni in PostDoc Positions



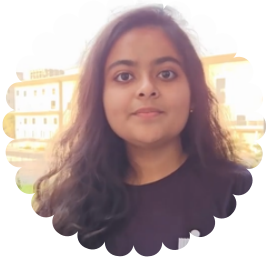
Testimonies



My journey at the Department of Computer Science and Engineering, IIT Hyderabad, has been a truly transformative experience. These two years have not only strengthened my technical foundation but also shaped the way I approach problems and learning itself. The guidance and mentorship from the faculty have been invaluable — they inspire you to think deeply, question freely, and innovate constantly. Every project, discussion, and challenge has contributed to my personal and professional growth. As I step forward, I carry with me the confidence, curiosity, and clarity that IITH has instilled in me.

KRITIK AGARWAL - M.TECH IN COMPUTER SCIENCE & ENGINEERING (2023-2025)

I'm deeply grateful to the CSE Department for the immense support and learning opportunities. Courses like Natural Language Processing and Foundations of Machine Learning offered rich hands-on experience and research exposure. I sincerely thank my mentor, Dr. Maunendra Desarkar, for his valuable suggestions and constant guidance.



TRISHITA SAHA - M. TECH. IN COMPUTER SCIENCE AND ENGINEERING(2023-2025)



The past four years have been an incredible learning experience, with exceptional professors and engaging courses. I had the privilege of working for two years in the Compilers Lab under Prof. Ramakrishna, which truly strengthened my research and technical skills. My advice to juniors is to build strong connections—with friends, mentors, and faculty—as their guidance will be invaluable in making the right decisions.

RAJIV SHAILESH CHITALE - B.TECH IN CSE (2021-2025)

My journey at IIT Hyderabad has been truly enriching, both academically and personally. Courses like Mathematics and Machine Learning deepened my understanding and passion for data science. I'm grateful to the exceptional faculty, especially Dr. Shrijit, for his valuable mentorship and guidance. Interacting with talented peers broadened my perspective and learning experience. IIT Hyderabad has truly been an invaluable chapter in my life.



SAMEER LOWLEKAR, MTECH IN DATA SCIENCE (2022-2025)

Gallery


ROCA 2025
intel




Faculty Updation Program
on
Wireless Security 2025












CSE




Distributed Computing and
Dates: 4-7 January
Venue: Indian
Hyderabad






ICDCN 2025
SIGOPS
MARVELL
Qualcomm
TiHAN
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING - IIT HYDERABAD


SECRITE
Quick Heal
Security and Privacy
in GenAI Chatbots


WINNER


CSE

CSE Facilities


CONFERENCE ROOM 1


MEETING ROOM


SEMINAR HALL 2


CONFERENCE ROOM 2


DISCUSSION ROOM


RESEARCH LAB


RESEARCH SCHOLARS' BAY


SEMINAR HALL 1

Contact US





"If a machine is expected to be infallible, it cannot also be intelligent."

- Alan Turing

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