Department of Computer Science and Information Systems

Contents

Department of Computer Science and Information Systems

BITS Pilani
Hyderabad Campus

Message from
Head of the Department

Computer Science as a stream is a powerful tool to create knowledge to make the world a better place to live in. Computer Science as a modern technology, encompasses all walks of life. Computer Scientists are not mere coders; they are problem solvers and researchers who bring about enormous advancements in our day to day life. The computing infrastructures we build, the communication systems we deploy and the intelligent algorithms we design – all are smart enablers in our daily lives. These elements help us enhance the quality of our professional and personal spaces. Computer Science and related technologies help secure various aspects of Information and Communication Technologies (ICT) integral to modern societies.

We, the CSIS Dept, at Hyderabad campus take pride in the fact that we produce the creamy layer of Computer Scientists and Engineers by imparting excellent training and mentoring them to address the challenges of the computing and automation requirements of our society. We inspire the students to be better individuals and mould them as the human resource responsible towards building a better society.

I wish all the current students the very best during their stint in BITS and in their future endeavours. I also welcome the prospective students to our Dept and assure them that they will have a very fruitful learning experience in the Institute enabling them to become efficient technocrats and Computer Scientists in future.

Prof. G Geethakumari
HoD, CSIS Dept

About the Department

The Department of Computer Science and Information Systems (CSIS) at BITS Hyderabad strives to produce engineers of tomorrow by imparting instruction with advanced curriculum and research methodologies in all aspects of Computer Science. The Computer Science and Information Systems department at BITS Hyderabad started admitting students from 2008, the year of inception of Hyderabad campus. The CSIS Dept offers B.E (Hons) Computer Science, M.E Computer Science as well as Ph.D. programmes. Apart from these programmes, we also offer a Minor programme in Data Science to equip our students to meet the requirements of the industry from the Data Science applications perspective. The CSIS Dept has a vibrant student strength of around 1200. The department has a good mix of faculty with vast experience having worked in reputed academic institutes and industry. The department offers a wide range of courses spanning areas like Algorithms, Theoretical Computer Science, Computer Architecture and Organization, Systems and Networks, Databases, Software engineering and Soft computing. The Dept has faculty expertise in various niche areas like Blockchain Technology, Natural Language Processing, Reinforcement Learning, Bio-Inspired Algorithms, Internet of Things, Cloud Computing, Human Computer Interaction, Computational Neuroscience and Cyber Physical Systems. The department lays emphasis on the hands-on aspects of learning through academic computing laboratories and computer oriented projects to make the students industry-ready. We also have thesis/dissertations to inculcate research aptitude in our students. The CSIS Department consistently attracts top BITSAT scorers every year. The CSIS Department is committed to our efforts in continuing to achieve high standards of excellence in academic and research activities in the coming years.

Department at a Glance

Department of Computer Science and Information Systems

Academic Programs:
BE (Honours) Computer Science; ME Computer Science and Ph.D.

Full time Faculty:
We have 25 full time faculty members and one Visiting Professor.

Areas of Research:
Computer Networks, Distributed Computing Systems, Information Security, Cloud Computing, Cloud Security and Cloud Forensics, Online Social Networks, Data Privacy, Internet of Things, Blockchain Technology, Artificial Intelligence (AI), Machine Learning (ML), Databases, Data Science and Data Analytics, Computer Architecture, Cyber Security and Secure Information Systems, Information and Communication Technologies and Development (ICTD) and Human Computer Interaction (HCI), Algorithms and Computational Geometry, Natural Language Processing (NLP), Software Engineering, Theoretical & Computational Neuroscience.

Undergraduate Enrolment: 1000
Post Graduate Enrolment: 60
Research Scholars and Fellows: 45

Funding Received in last 5 years (in Crores) : Rs 2.5 crores

Research Papers Published (2020): 55

Funding Received from: DST, DIT, Axiado India Pvt Ltd

Departmental Activities:
Workshops, seminars, faculty seminar series, student events, research show case, coding competitions, lab infra development.

Areas of Research

Computer Networks, Radio Access Networks, SDN, Mobile Opportunistic Networks, Cloud Computing, Edge Computing.

Machine Learning, Artificial Intelligence, NLP, Reinforcement Learning, Federated Learning, GANs, Computer Vision, Computational Neuroscience.

Facility Location Problems, Dynamic and Streaming Graphs, Parallel algorithms, Combinatorial Optimization, Graph Theory, Regression Testing.

HCI, ICTD, Smart Sensors, Smart City Applications, Medical Informatics, UAVs and Automated Vehicles.

Distributed Computing Systems

Information Security

Data Science

Theoretical Computer Science

Database Management Systems

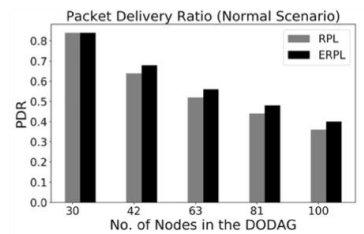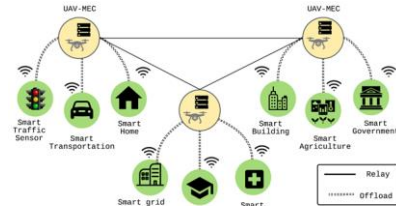Software Engineering

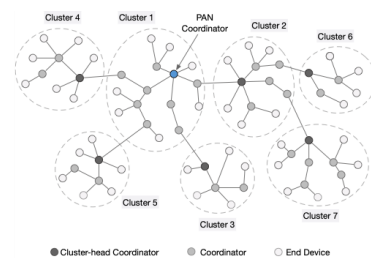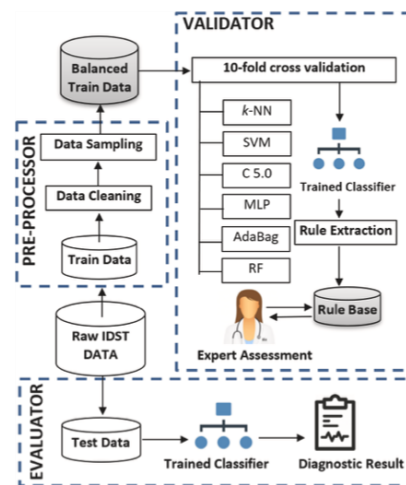Human Computer Interaction

Internet of Things

Packet Delivery Ratio (Normal Scenario)

(a) PDR in normal scenario with increasing no. of nodes in the DODAG

Faculty and their Research

Faculty	Distributed Computing Systems and Information Security	Data Sciences	Theoretical Computer Science	Database Management Systems	Software Engineering
Prof. Chittaranjan Hota	■				
Prof. N.L.Bhanu Murthy		■			
Prof. R.Gururaj				■	
Prof. Tathagata Ray			■		
Prof. G Geethakumari	■				
Prof. Aruna Malapati		■			
Dr. Barsha Mitra	■				
Dr. Suvadip Batabyal	■				
Dr. Subhrakanta Panda	■	■			■
Dr. Lov Kumar		■			
Dr. Jabez J Christopher		■			
Dr. Paresh Saxena	■				
Dr.Rajib Ranjan Maiti	■				
Dr. B Manjanna			■		
Dr. Manik Gupta	■	■			
Dr. Dipanjan Chakraborty	■				
Dr. Venkatakrishnan Ramaswamy		■	■		
Dr. Apurba Das			■		
Dr. Nikumani Choudhury	■				
Dr. Raghunath Reddy M			■		
Dr Sameera Muhamed Salam			■		
Dr Pragati Shrivastava	■				
Dr. Aritra Mukherjee		■			
Dr Abhijit Das		■			
Prof. Narasimha Bolloju					■
Dr. D V N Siva Kumar	■				

Sponsored Research

> INR 2.5 crores worth externally funded research grants received in the last 5 years

International Industrial projects received in last 5 years: INR 77 lakhs from AnsuR (Norway), Axiado (USA).

Project Name	PI & (Co-PI)	Funding Agency	Amount (lakhs)	Start date/ duration
Defending malicious attacks on Bio-CPS devices	Prof. Chittaranjan Hota	TIH, DST	70 Lakhs	2020-2025
ML-Aided Secure SoC and Analytics (MASTIC)	PI: Dr. Paresh Saxena, Co-PI: Dr. Manik Gupta and Dr. Rajib Maiti	Axiado	67 Lakhs	2021-2023
Defend Internet of Things-based Cyber Espionage through analysis of encrypted or unencrypted network traffic using machine learning	Dr. Rajib Maiti.	DST-SERB	28 Lakhs	2021-2024
QoE Optimized Multimedia Content Delivery through Caching in D2D underlay Networks	Dr. Suvadip Batabyal	DST-SERB	21 Lakhs	2021-2024
Data driven Multimodal System for Academic Stress Management in Indian Universities (ARU),	Dr. Manik Gupta (PI) and Dr. Dipanjan Chakraborty (Co-PI)	SERB-POWER	16.5 Lakhs	2021-2024
IoT and ML enabled Multiplexed Fully Integrated Portable Platform for Onsite Measurement of Water Quality Indicators	Dr. Manik Gupta (Co-PI)	SERB-POWER	26 Lakhs	2021-2024
Machine Vision based Adaptive Quality Assurance System for a Generic Assembly Unit of Armaments	Prof. Tathagata Ray (Co-PI)	DRDO	39 Lakhs	2020-2023
Defect Prediction Project	Prof. N L Bhanu Murthy (PI) and Dr. Lov Kumar (Co-PI)	Nucleus Software	3 Lakhs	2021-2023
Design, development and project management support for two AI-based dialogue systems (e.g. voice-based chatbot) in Indian languages	Dr. Dipanjan Chakraborty	GIZ	8.96 Lakhs	2021-2022
Multipath Networking Test-bed for Drone Communications (MUT-DROCO)	Dr Paresh Saxena.	DST-SERB	16.6 Lakhs	2020-2022
Interpretation of Tuberculin Reaction Using Medical Photography and Computer Aided Diagnosis	Dr. Jabez Christopher	DST-SERB	9.94 Lakhs	2020-2022
Testing of AI Application	Dr. Lov Kumar (PI) and Prof. N L Bhanu Murthy (Co-PI)	TestAIng Solutions Pvt. Ltd	8.8 Lakhs	2020-2021

Research Scholars

Sl. No.	Name:	Supervisor(s)	Area	Sub Area	Mode
01	B.S.A.S.Rajita	Dr. Subhrakanta Panda	Data Science	Graph-Mining	Full Time
02	Soumya Prakash Otta	Dr Subhrakanta Panda and Prof. Chittaranjan Hota	Distributed Computing Systems and Information Security	Cloud Security and Cloud Forensics	Aspirant
03	Saibharath S	Dr Sudeepta Mishra and Prof. Chittaranjan Hota	Distributed Computing Systems and Information Security	Resource Allocation and Load Balancing in Wi-Fi and 5G, Traffic classification	Part Time
04	S Vishwanath Reddy	Dr. Manjanna B	Theoretical Computer Science	Algorithms and Computational Geometry	Full Time
05	Tummalapalli Sahithi	Dr. Lov Kumar and Prof N.L. Bhanu Murthy	Software Engineering	Machine Learning, Software Engineering	Full Time
06	K Sai Anirudh	Prof Chittaranjan Hota and Prof NL Bhanu Murthy	Distributed Computing Systems and Information Security	Distributed Computing Systems and Machine Learning	Full Time
07	Mandan Naresh	Dr. Paresh Saxena and Dr. Manik Gupta	Distributed Computing Systems and Information Security	Machine learning, computer networks.	Full Time
08	Priyanka Rushikesh Chaudhary	Dr. Rajib Ranjan Maiti	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems, Data Privacy, Machine Learning (ML) , Internet of Things.	Full Time
09	Priyanka Gupta	Dr. Manik Gupta	Data Sciences	Machine Learning (ML), Data Science and Data Analytics	Part Time

Sl. No.	Name:	Supervisor(s)	Area	Sub Area	Mode
10	Mithun Kumar S R	Dr Lov Kumar and Dr Aruna Malapati	Data Sciences	Natural Language Processing (NLP)	Part Time
11	Nida Fatima	Dr. Paresh Saxena	Distributed Computing Systems and Information Security	Computer Networks, Information and Communication Technologies and Development (ICTD)	Full Time
12	Pattiwar Shravan Kumar	Dr Paresh Saxena	Distributed Computing Systems and Information Security	Performance improvement in multipath TCP in Drone network	Full Time
13	Deepa Kumari	Dr. Subhrakanta Panda, Dr. Jabez Christopher	Distributed Computing Systems and Information Security	Blockchain Technology, Machine Learning	Full Time
14	Ramisetty Kavya	Dr. Jabez Christopher, Dr. Subhrakanta Panda	Data Sciences	Machine Learning	Full Time
15	Chillara Anil Kumar	Dr.Paresh Saxena, Dr.Rajib Ranjan Maiti, Dr.Manik Gupta	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems, Machine Learning (ML)	Full Time
16	Chavali Lalitha	Dr. Paresh Saxena	Distributed Computing Systems and Information Security	Cyber Security and Reinforcement Learning	Full Time
17	S Rasagna Vakkalanka	Prof. G. Geetha Kumari	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems	Full Time
18	K Simran	Dr. Venkatakrishnan Ramaswamy	Data Science	Theoretical and Computational Neuroscience	Full Time
19	Anand Agrawal	Dr. Rajib Ranjan Maiti	Distributed Computing Systems and Information Security	Internet of Things and Cyber Security	Full Time
20	Chagaleti Anjineyulu	Dr. Barsha Mitra	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems, Cloud Security, and Identity and Access Management	Part Time

Research Scholars

Sl. No.	Name:	Supervisor(s)	Area	Sub Area	Mode
21	Singarapu Pranavi	Dr. Suvadip Batabyal	Distributed Computing Systems and Information Security	Computer Networks	Part Time
22	Koyya Deepthi Krishna Yadav	Prof. Aruna Malapati	Machine Learning	Natural Language Processing	Part Time
23	Vankamamidi Lakshmi Kartheek	Prof. R. Gururaj	Database Management Systems	Query optimization, Database Security.	Part Time
24	T.Prathyusha	Dr. Manik Gupta, Dr. Paresh Saxena, Dr. Rajib R Maiti	Distributed Computing Systems and Information Security and Data Sciences	Cyber Security and Secure Information systems	Full Time
25	S Shashank	Dr.Paresh Saxena, Dr.Rajib Ranjan Maiti, Dr.Manik Gupta	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems, Machine Learning (ML)	Full Time
26	Harsha Varun Marisetty	Dr. Manik Gupta	Distributed Computing Systems and Information Security	Fog And Edge Computing and Distributed Machine Learning	Full Time
27	Chaitra C R	Dr. Dipanjan Chakraborty	Distributed Computing Systems and Information Security	Human-Computer Interaction (HCI)	Full Time
28	Hari Prasad Piridi	Dr. Dipanjan Chakraborty	Data Sciences	Machine Learning (ML)	Part Time
29	Subhashree Barada	Prof. N.L.Bhanu Murthy	Data Sciences	Machine Learning	Full Time
30	P Priyanka Chowdary	Dr. Dipanjan Chakraborty	Distributed Computing Systems and Information Security	Information and Communication Technologies and Development (ICTD) and Human Computer Interaction (HCI)	Full Time
31	Prerna Saurabh	Dr. Manik Gupta	Data Science	Digital technologies for well-being and Multimodal Learning	Full Time

Sl. No.	Name:	Supervisor(s)	Area	Sub Area	Mode
32	Kalakanda Rahul Roy Munna	Dr. Apurba Das	Theoretical Computer Science	Algorithms and Computational Geometry	Full Time
33	Praneeta Krishnaprasad Maganti	Dr. Rajib Ranjan Maiti, Dr. Paresh Saxena, Dr. Manik Gupta	Distributed Computing Systems and Information Security	Cyber Security and Secure Information Systems	Full Time
34	Afrin Alam	Prof. Chittaranjan Hota	Distributed Computing Systems and Information Security	IoT Security, Data Sciences	Full Time
35	Mini TT	Prof. Chittaranjan Hota	Distributed Computing Systems and Information Security	Cyber Security	Part Time
36	Sudhir Kumar Bai	Dr. Suvadip Batabyal	Data Sciences	Machine Learning (ML), Databases, Data Science and Data Analytics	Part Time
37	Sudeep Narayan Banerjee	Dr. Rajib Ranjan Maiti	Distributed Computing Systems and Information Security	Security in High Performance Computing Cluster	Part Time
38	Prashant Akhawat	Dr. Lov Kumar	Data Sciences	Machine Learning and Secure Information Systems	Part Time
39	Hemanth Kumar Choudary K	Dr. Apurba Das	High Performance Computing & Distributed Systems	Algorithms & Theoretical Computing	Part Time

Facilities and Laboratories

The CSIS Dept has set up extensive computing facilities as follows: Academic Computing Lab 1 & Lab 2; Research and Innovation Lab 1 & Lab 2; Research Scholars Lab 1 & Lab 2; Dept Virtual infrastructure.

Practice School

Practice School is a hallmark of the BITS Curriculum. Practice School is an educational innovation seeking to link industry experience with university instruction. PS-II Program creates the required setting for experiential learning, by providing students with an opportunity to work on relevant assignments in an industry of their choice, under the guidance of professional experts and the supervision of faculty. The CSIS Dept attracts high profile Practice School stations cutting across various specialized domains and areas of Computer Science.

Some of the popular practice school stations in the CSIS stream include:
- **Adobe Systems**
- **Amazon**
- **Cisco Systems**
- **Couture AI**
- **Dell R&D**
- **GE Digital**
- **IBM Security**
- **JPMC**
- **Morgan Stanley**
- **Myntra.com**
- **Netapp**
- **Nutanix Technologies**
- **Oracle India**
- **Oyo Rooms**
- **SAP India**
- **Siemens Technology**
- **Symantec Software**
- **TCS**
- **Toshiba Software**
- **UPGRAD**
- **UST Global**

Placements

<u>Placement Statistics for CSIS Dept for the AY 2020-21</u>

ACADEMIC YEAR 2020-21		HYDERABAD							
Code	Department / Program	Registered	Placed	Unplaced	% Placed	Median	Average	MAX	MIN
A7	B.E COMPUTER SCIENCE	238	236	2	99.16	22,74,650	22,26,956	43,31,133	5,00,000
H103	M.E. COMPUTER SCIENCE	38	37	1	97.37	19,00,000	22,70,020	43,31,133	7,00,000

Distinguished Alumni

Dr.Aditya Karanam **Batch of 2010** **Assistant Professor - Dept of IS and Analytics** **National University of Singapore** **Singapore**	
Mr.Rohith Gopidi **Indian forest service at Government of Telangana**	
Mr.Abhijit Kane **Co-Founder,Postman**	
Ms.Vineetha Krishnan **Batch of 2008** **R&D Software Engineer- 3** **Broadcom Inc.**	
Mr.Naresh Rajendra Shah **Batch of 2008** **Co-founder and CTO at Untangle AI**	