Table of Contents

Welcome to the BITS Pilani Goa Campus Department of Computer Science and Information Systems, which began operations in 2004. Our department has about a thousand students, as well as 27 faculty and four staff personnel. In the field of computer science, we offer both first-year and advanced-degree programmes. We currently have 41 PhD students, with some of them receiving external funding.

The department's principal goal is to provide our students with an overall development experience that includes a balance of intellectual and practical experiences that prepares them to meet a variety of social needs. This is aided by a strong infrastructure and a dedicated faculty.

Our department has active research groups that work together to conduct collaborative and interdisciplinary studies. Our study is supported by cutting-edge research facilities. Every year, we get around Rs 60 crore on average from external funding, which is used to support Ph.D./JRF students and state-of-the-art facilities.

Prof. Vinayak Naik

The Department of **Computer Science and Information Systems** at BITS Goa endeavor to produce engineers of tomorrow by imparting instruction with advanced curriculum, AI Research Center and research methodologies in modern areas of Computer Science.

The Department of Computer Science and Information System of Goa campus presently offers

- **BE** started admitting students in the year 2004,
- **ME** started admitting students in the year 2009, and
- **Ph.D** degrees in the year 2004.

The department has an outstanding student strength over 1000. The department has an adequate amalgamation of the faculty with the experience of reputable academic institutes and industry. The department offers a wide range of courses in areas including Data Structure and Algorithms, Database Systems, Digital Design, Computer Networks, Cryptography, Machine Learning, Software engineering etc.

The department consists of well-maintained laboratories, AI Research Center and the faculties and students of the department are actively involved in research in major contemporary fields. The department regularly hosts a number of popular research conferences

Department at a Glance

No. of Faculty	:	27	
		Sr. Professor : 1	Professor : 3
		Associate Professor : 4	Assistant Professor Gr-I : 15
		Assistant Professor Gr-II : 3	Visiting Assistant Professor: 1

No. of Research Publications : 62 (Since January 2021)

Sponsored Funding Amount : (Since January 2021)
Sanctioned Project Amount : Rs. 62,35,000
Ongoing Project Amount : Rs. 1,57,23,385
Completed Project Amount : Rs. 3,50,000

Research / Teaching Labs : 05

Research Papers Published : 950

Funding Received From : DST | IC-IMPACTS | TCS | GSL | GOOGLE | SERB-DST | BRNS

Departmental Activities : Conferences | Workshops | Invited Talks | Expert interactions Work Integrated Learning Program (WILP)

Thrust Areas : Data Science, Networks, Software Science, Systems, and Theory

Dr. A Baskar

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (Chennai Mathematical Institute)
Joined in BITS	:	2013
Prior Experience	:	2 Years
Areas of Interest	:	**Theory**

Formal Language and Automata Theory,

Logic in Computer Science,

Security Protocols and Verification

Publications	:	8
Courses Taught	:	Theory of Computation,

Data Structures and Algorithms, Artificial Intelligence,

Logic in Computer Science, Introduction to Computer Programming

Link	:	https://dblp.uni-trier.de/pid/36/5799.html

https://scholar.google.co.in/citations?user=mNpOTuEAAAAJ&hl=en

Faculty and Areas of Research

Dr. Aditya Challa

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (SSIU, ISI-Bangalore)
Joined in BITS	:	2021
Prior Experience	:	2 Years
Areas of Interest	:	**Data Science**
		Mathematical Morphology,
		Machine Learning Algorithms,
		Computer Vision,
		Combinatorial Optimization
Publications	:	16
Courses Taught	:	Machine Learning
Link	:	https://dblp.org/pid/189/3492.html
		https://scholar.google.com/citations?user=_XkD5AkAAAAJ&hl=en

Faculty and Areas of Research

Dr. Anup Basil Mathew

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (IMSc, Chennai)
Joined in BITS	:	December 2018
Prior Experience	:	1 Year
Areas of Interest	:	**Theory**

Synthesis of programs for distributed systems,

Logic and Automata theory,

Modal Logics, in particular Epistemic Logic

Publications	:	4
Courses Taught	:	Computer Programming, Discrete Structures,

Design and Analysis of Algorithms,

Data Structures and Algorithms

Link	:	https://dblp.org/pid/144/7806.html

https://scholar.google.com/citations?user=UK3b_tIAAAAJ

Dr. Arnab Kumar Paul

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (Virginia Tech, USA)
Joined in BITS	:	2021
Prior Experience	:	1.5 Years
Areas of Interest	:	**Systems**

Distributed Systems, Parallel File Systems,

High Performance Computing,

Applied Machine Learning, Cloud Computing,

Internet of Things, Edge Computing, Big Data Analysis

Publications	:	30
Courses Taught	:	Computer Programming
Link	:	https://dblp.org/pid/191/3093.html
		https://scholar.google.co.in/citations?user=az8MAG0AAAAJ&hl=en

Faculty and Areas of Research

Dr. Ashwin Srinivasan

Designation	:	Sr. Professor
Qualification	:	Ph.D. (University of New South Wales, Australia)
Joined in BITS	:	2015
Prior Experience	:	24 Years
Areas of Interest	:	**Data Science**
		Symbolic Machine Learning,
		Implementation of ILP,
		Conceptual development of ILP
Publications	:	95
Courses Taught	:	Artificial Intelligence, Machine Learning
Link	:	https://dblp.uni-trier.de/pers/hd/s/Srinivasan:Ashwin
		https://scholar.google.co.in/citations?user=zpNTeogAAAAJ&hl=en&oi=ao

Faculty and Areas of Research

Dr. Basabdatta Sen Bhattacharya

Designation	:	Associate Professor
Qualification	:	Ph.D. (University of Manchester, UK)
Joined in BITS	:	2018
Prior Experience	:	(Industry: 6 Years; Academia: 2 Years (pre-PhD) + 12 Years (post-PhD)
Areas of Interest	:	**Data Science**

Spiking Neural Networks, Computational Neurology, Brain inspired Machine Intelligence, Brain inspired Reinforcement Learning,

Neural Coding, Visual recognition, Speech and Text Recognition for Indian Languages

Publications	:	54
Courses Taught	:	Neural Networks, Foundations of Data Science, Computer Architecture, Reinforcement Learning,
Link	:	https://orcid.org/0000-0001-5079-0619

Faculty and Areas of Research

Dr. Bharat M. Deshpande

Designation	:	Professor
Qualification	:	Ph.D. (IIT Bombay)
Joined in BITS	:	2001
Prior Experience	:	3 Years
Areas of Interest	:	**Theory**
		Complexity Theory, Algorithms, Data Mining
Publications	:	33
Courses Taught	:	Computer programming, Discrete Structures For Computer Science, Theory of Computation, Data Structures & Algorithms, Design & Analysis of Algorithms, Advanced Algorithms & Complexity, Artificial Intelligence, Parallel Computing
Link	:	https://scholar.google.co.in/citations?user=dEH3K6UAAAAJ&hl=en

Dr. Biju K. Raveendran

Designation	:	Associate Professor
Qualification	:	Ph.D. (BITS Pilani, Pilani)
Joined in BITS	:	2009
Prior Experience	:	-
Areas of Interest	:	**Systems**

Real - time / Embedded Operating Systems,

High Performance Operating Systems for HiPC and Cloud,

Low Power Embedded Architecture,

Storage Systems, P2P Overlay Networks.

Publications	:	27
Courses Taught	:	Operating Systems, Advanced Operating Systems, Software for Embedded Systems, Real - time Systems , Computer Architecture, Advanced Computer Architecture
Link	:	https://dblp.uni-trier.de/pid/50/2723.html
		https://scholar.google.co.in/citations?user=wpRpGpwAAAAJ&hl=en

Faculty and Areas of Research

Dr. Diptendu Chatterjee

Designation	:	Visiting Faculty
Qualification	:	Ph.D. (Indian Statistical Institute, Kolkata)
Joined in BITS	:	2022
Prior Experience	:	3 Months
Areas of Interest	:	**Theory**
		Combinatorics,
		Graph Theory,
		Algorithms,
		Combinatorial Optimization
Publications	:	6
Courses Taught	:	Bio-Inspired Intelligence
Link	:	https://dblp.org/pid/302/4527.html
		https://scholar.google.com/citations?user=iv6xhz8AAAAJ&hl=en

Faculty and Areas of Research

Dr.
Harikrishnan
N. B

Designation	:	Visiting Faculty
Qualification	:	Ph.D. (National Institute of Advanced Studies (NIAS))
Joined in BITS	:	2022
Prior Experience	:	4 Years
Areas of Interest	:	**Data Science**

Brain-inspired learning,

Foundations of Artificial Intelligence,

Dynamic Mode Decomposition and its Applications,

Chaos Theory and its Applications,

Signal Processing

Publications	:	6
Courses Taught	:	Machine Learning
Link	:	https://scholar.google.com/citations?user=9fMmKMEAAAAJ&hl=en

Faculty and Areas of Research

Mr. Hemant Rathore

Designation	:	Assistant Professor Gr-II
Qualification	:	Pursuing Ph.D. (BITS Pilani, Goa), M.E. (BITS Pilani, Goa)
Joined in BITS	:	2016
Prior Experience	:	3 Years (Industrial Experience)
Areas of Interest	:	**Networks**
		Malware Analysis and Detection,
		Network Security,
		Machine Learning,
		Reinforcement Learning
Publications	:	32
Courses Taught	:	Data Mining,
		Advanced Data Mining,
		Network Security,
		Operating Systems
Link	:	https://dblp.org/pid/224/4545.html
		https://scholar.google.com/citations?user=3ea8AOMAAAAJ&hl=en

Dr. Kanchan Manna

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (IIT Kharagpur)
Joined in BITS	:	2019
Prior Experience	:	3.9 Years
Areas of Interest	:	**Systems**

Design, Analysis and Optimisation of NoC Architecture,

Design, Analysis and Optimisation of Instruction Set Architecture,

Design, Analysis and Optimisation of Systems Security

Publications	:	46
Courses Taught	:	Computer Architecture, Advanced Computer Architecture
Link	:	https://dblp.org/pid/26/7685.html
		https://scholar.google.co.in/citations?user=52Dr_LAAAAAJ&hl=en

Dr. Kunal Korgaonkar

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (UC San Diego, USA)
Joined in BITS	:	2022
Prior Experience	:	3 Years (Product Design & Engineering),
		5 Years (Postdoc & Industry Research)
Areas of Interest	:	**System & Data Science**
		Core Computer Architecture,
		Computer Systems Design,
		Computing & Society
Publications	:	20
Courses Taught	:	Quantum Architecture and Programming, Compiler Construction,
		Principles of Programming Languages, Computer Architecture
Link	:	https://dblp.org/pid/60/10106.html
		https://scholar.google.com/citations?user=HZq-WzsAAAAJ&hl=en&authuser=1

Faculty and Areas of Research

Dr. Neena Goveas

Designation	:	Professor
Qualification	:	Ph.D. (IIT Bombay)
Joined in BITS	:	2003
Prior Experience	:	2 Years as a PI in a DST project
Areas of Interest	:	**Networks**

Network Science, Wireless Sensor networks,

Mean field and computational approaches to magnetic systems,

Thermodynamic properties of magnetic systems

Publications	:	35
Courses Taught	:	Network Programming, Discrete Structures For Computer Science,

Software for Embedded Systems, Object Oriented Analysis and

Design,

Object Oriented Programming, Computer Programming,

Computer Graphics, Data Structures and Algorithms

Link	:	https://dblp2.uni-trier.de/pid/161/6691.html

https://scholar.google.co.in/citations?user=if0NqpMAAAAJ&hl=en

Faculty and Areas of Research

Dr. Ramprasad S. Joshi

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (BITS PILANI, Goa)
Joined in BITS	:	2016
Prior Experience	:	-
Areas of Interest	:	**Theory**
		Computational Complexity, Real Computation (the BSS Model), Randomized Search Heuristics, Robotics, Natural Language Processing
Publications	:	12
Courses Taught	:	Data Structures and Algorithms, Logic in Computer Science, Discrete Mathematics, Computational Geometry, Programming Languages and Compiler Construction, Principles of Programming Languages, Compiler Design/Construction
Link	:	https://dblp.uni-trier.de/pid/214/7089.html
		https://scholar.google.co.in/citations?user=2Sv-n_sAAAAJ&hl=en

Faculty and Areas of Research

Ms. Rizwan Parveen

Designation	:	Visiting Faculty
Qualification	:	Pursuing Ph.D. (BITS PILANI, Goa), M.E. (BITS Pilani, Goa)
Joined in BITS	:	2015
Prior Experience	:	2.5 Years (Software Industry)
Areas of Interest	:	**Networks**
		Cyber-Physical Systems, Information Systems
Publications	:	5
Courses Taught	:	Software Engineering,
		Software Architecture,
		Software for Embedded Systems, Cloud Computing,
		Object-Oriented Programming, Computer Programming
Link	:	https://www.researchgate.net/profile/Rizwan-Parveen

Dr. Sanjay K. Sahay

Designation	:	Associate Professor
Qualification	:	Ph.D. (DDU Gorakhpur University)
Joined in BITS	:	2005
Prior Experience	:	04 Years
Areas of Interest	:	**Data Science**
		Information Security, Malware Analysis,
		Applied Cryptography and Gravitational Waves
Publications	:	77
Courses Taught	:	Network Security, Cryptography, Computer Networks,
		Advanced Data Mining, Operating System,
		Computer Programming, Study in Advanced Topics
Link	:	https://scholar.google.ca/citations?user=i6lSvKEAAAAJ&hl=en

Faculty and Areas of Research

Dr. Shubhangi K. Gawali

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (BITS Pilani, Goa)
Joined in BITS	:	2010
Prior Experience	:	7 Years
Areas of Interest	:	**Systems**
		Management of Information Systems and Technology, Advance Operating system, Distributed databases
Publications	:	02 - Conference, 02- Journal
Courses Taught	:	Real Time System, Operating System, Advanced Operating System, Database System, Computer Programming
Link	:	https://scholar.google.co.in/citations?user=2hDkzdgAAAAJ&hl=en

Faculty and Areas of Research

Dr. Snehanshu Saha

Designation	:	Associate Professor
Qualification	:	Ph.D. (University of Texas at Arlington, USA)
Joined in BITS	:	2019
Prior Experience	:	12 Years
Areas of Interest	:	**Data Science**

Theory of Shallow Neural Nets, Chaotic Neural Networks, Swarms and Super-optimizers, Differential Equation based Modeling in Neural Networks, Kernels in Neural Nets, Classification in Large Astronomy DataSets

Publications	:	97
Courses Taught	:	Machine learning, Optimization, Computational learning theory, Foundations of Data Science,Graph Algorithms, Discrete Mathematics, Approximation Theory, Foundations of Deep Learning, Applied Statistical Methods, Computer Systems performance Analysis, Logic
Link	:	https://dblp.org/pid/130/3938.html
		https://scholar.google.com/citations?user=C-Qm2LcAAAAJ&hl=en

Faculty and Areas of Research

Dr. Sougata
Sen

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (Singapore Management University, Singapore)
Joined in BITS	:	2021
Prior Experience	:	3.5 Years
Areas of Interest	:	**Systems**
		Mobile Computing, Wearable Sensing,
		Pervasive and Ubiquitous Computing, IoT, mHealth, HCI
Publications	:	49
Courses Taught	:	Wireless and Mobile Health,
		Computer Networks,
		Design and Development
Link	:	https://dblp.org/pid/150/9980.html
		https://scholar.google.com.sg/citations?user=IEy_zGEAAAAJ&hl=en

Faculty and Areas of Research

Dr. Sravan
Danda

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (SSIU ISI-Bangalore)
Joined in BITS	:	07/09/2020
Prior Experience	:	1 Year
Areas of Interest	:	**Data Science**
		Mathematical Morphology, Combinatorial Optimization,
		Deep Learning
Publications	:	17
Courses Taught	:	Image Processing, Applied Statistical Methods
Link	:	https://dblp.uni-trier.de/pid/189/3118.html
		https://scholar.google.co.in/citations?user=5kSGWFoAAAAJ&hl=en

Dr. Sujith Thomas

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (IIT Kanpur)
Joined in BITS	:	24/12/2018
Prior Experience	:	1.5 Years
Areas of Interest	:	**Data Science**
		Cognitive Science, Data Science, Artificial Intelligence, Human Category Learning, Concepts and Category Representation
Publications	:	6
Courses Taught	:	Foundations of Data Science, Artificial Intelligence
Link	:	https://scholar.google.co.in/citations?user=rGAO0sUAAAAJ

Dr. Surjya Ghosh

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (IIT Kharagpur)
Joined in BITS	:	Aug-2021
Prior Experience	:	2 Years
Areas of Interest	:	**Systems**
		Human Computer Interaction, Machine Learning, Applied AI, Affective Computing, Mobile Computing, Ubiquitous Computing, Experience Sampling Method
Publications	:	26
Courses Taught	:	Human-computer Interaction, Computer Networks , Pervasive Computing
Link	:	https://dblp.org/pid/27/10262.html
		https://scholar.google.co.in/citations?user=jwQqy80AAAAJ

Faculty and Areas of Research

Dr. Swaroop Joshi

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (The Ohio State University, USA)
Joined BITS	:	February 2021
Prior Experience	:	3.5 Years
Areas of Interest	:	**Software Science**

Computing Education, Software Engineering, Accessibility, Mobile Apps Development

Publications	:	20
Courses Taught	:	Software Development for Portable Devices

Compiler construction

Computer Programming

Link	:	https://swaroopjoshi.in

Faculty and Areas of Research

Dr. Swati Agarwal

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (IIIT-Delhi)
Joined in BITS	:	July 2017
Prior Experience	:	-
Areas of Interest	:	**Data Science**
		Social Computing, Natural Language Processing, Knowledge Graphs
Publications	:	32
Courses Taught	:	Data Mining, Information Retrieval, Advanced Data Mining, Data Structures and Algorithms, Natural Language Processing, Database Systems
Link	:	https://scholar.google.co.in/citations?user=-zk-xD0AAAAJ&hl=en
		https://clsnet-lab.in/

Dr. Tanmay Tulsidas Verlekar

Designation	:	Assistant Professor Gr-I
Qualification	:	Ph.D. (Instituto Superior Técnico, Portugal)
Joined in BITS	:	2021
Prior Experience	:	1 Year
Areas of Interest	:	**Data Science**
		Computer Vision, Deep Learning, Biometrics, Biomechanics
Publications	:	14
Courses Taught	:	Neural Networks & Fuzzy Logic, Deep Learning
Link	:	https://scholar.google.com/citations?user=CFkxQ6cAAAAJ&hl=en

Dr. Vinayak Naik

Designation	:	Professor
Qualification	:	Ph.D (The Ohio State University, USA)
Joined in BITS	:	2018
Prior Experience	:	12 Years
Areas of Interest	:	**Networks**

Wireless Networks, primarily WiFi, Mobile Computing and Sensing,

IoT, SDN, Machine Learning, Artificial Intelligence

Publications	:	125
Courses Taught	:	Pervasive Computing in collaboration with Postman,

Computer Networks, Advanced Computer Networks,

Software Development for Portable Devices, Network Programming

Link	:	https://dblp.org/pid/29/3269.html

https://scholar.google.co.in/citations?user=HF7IPeQAAAAJ&hl=en

Support Staff

Ms. Neha Naik
Technician

Mr. Sai Sandeep Kasturi
Technician

Mr. Shreenivas A. Naik
Sr. Technician

Mr. Yellumaharaj Akalwadi
Operation Assistant

Ph.D. Scholars : **41**

Full Time : **19**

                                  Institute : **12**

                                  Faculty : **02**

                                  WILP Faculty : **01**

                                  Project : **04**

Part Time : **21**
Aspirant Scheme : **1**

Sponsored Research

Project Sanctioned From

Research Accomplishments

Sponsored Research (Ongoing Projects)

Sl. No.	Projects	PI & Co-PI	Agency	Amount Lakhs	Start Date	End Date
1	Agent-Based Simulation of Covid-19: Estimating the spread and disease burden using advanced Epidemiological modeling	Vinayak Naik	Indo-Canadian Shastri Institute	20,00,000	Dec 2020	Mar 2022
2	Agent-Based Simulation of Covid-19: Estimating the spread and disease burden using advanced Epidemiological modeling	Raja Sengupta & Vinayak Naik	IC-IMPACT	12,00,000	Oct 2020	Sep 2022
3	Mobile App for Improving Survival in Fires through Efficient Egress: The Role of Impromptu Indoor ~WiFi Localization and Georeferenced Building Maps	Vinayak Naik & Ashwin Srinivasan	IC-IMPACTS and DST SERB	38,18,512	Sep 2019	Aug 2022

Sponsored Research (Ongoing Projects)

Sl. No.	Projects	PI & Co-PI	Agency	Amount Lakhs	Start Date	End Date
4	An interdisciplinary study in Machine Learning and Classification for Astronomy	Snehanshu Saha & Jayant Murthy	SERB	26,00,000	Sep 2018	Sep 2022
5	A low power deep spiking neural network for forest surveillance	Basabdatta Sen bhattacharya & Sujith Thomas	SERB (CRG)	31,47,973	Feb 2020	Jan 2023

Patents

Sl. No.	Title	Inventors	Patent #	Status	Date
1	Method and system for information extraction from document images using conversational interface and database querying	Ashwin Srinivasan	1093897	Granted	2019
2	Method and System for Iterative Knowledge Distillation for Neural Network Compression	Tirtharaj Dash	202021055409	Filed	2021

Invited Talks - 2021

Sl. No.	Resource Person	Details
1	Vinayak Naik	Talk on "Artificial Intelligence for the Buckeye Bridge Lecture Series" at the Office of International Affairs and India Gateway of The Ohio State University on 16th March 2021
2	Sravan Danda	Talk on "Power Watersheds and Contrast Invariance" at Conference on Digital Geometry and Discrete Variational Calculus, Marseille, France on 31st March 2021
3	Sravan Danda	Talk on "Recent Advances in Mathematical Morphology" at KSRM College of Engineering, Kadapa, Andhra Pradesh on 4th May 2021
4	Sougata Sen	Talk on "Behavior monitoring using wearable devices as part of the ILDP program" at Hiroshima University, Japan on 6th July 2021
5	Sougata Sen	Talk on "Behavior monitoring using wearable devices" at IIIT Dharwad on 5th June 2021
6	Sougata Sen	Talk on "Behavior monitoring using wearable devices" at Loyola College of Engineering, Vijayawada, AP on 9th July 2021

Sl. No.	Resource Person	Details
7	Sougata Sen	Talk on "Applications of IoT" at Continuing Education program, IIT Roorkee on 15th July 2021
8	Basabdatta Sen Bhattacharya	Talk on "Women in STEM: the social challenges" at IEEE Computer Society, Bangalore Student Chapter, NMIT Bangalore on 2nd January 2021
9	Snehanshu Saha	Talk on "Beyond Hyperparameter tuning: Insights of Deep Learning Methodsin AI" at ISEC on 9th March 2021
10	Snehanshu Saha	Talk on "Pointwise Approximations of Error Gradients in Learning, DB3D" at Don Bosco Engg College, Goa on 22nd July 2021
11	Sanjay Kumar Sahay	Talk on "Adversarial Artificial Intelligence and Cybersecurity" at Allenhouse Institute of Technology, Kanpur on 30th April 2021
12	Ashwin Srinivasan	Talk on "Systems are Predicates" at 8th ACM IKDD CODS and 26th COMAD (Online) on 2nd January 2021

Sl. No.	Resource Person	Details
13	Swati Agarwal	Talk on "EDA and Prediction Models for IoT Data" at Machine Learning For Natural Language Processing and Internet of Things, IIT Roorkee on 25th January 2021
14	Sanjay Kumar Sahay	Talk on "Evolution of Malware and its Detection Techniques" at workshop on "IoT, IoT Security and Malware Analysis", School of Information Technology, Artificial Intelligence and Cyber Security, Rashtriya Raksha University, Gandhinagar on 27th November 2021

Department Labs   :   06

Data Center   :   01

Research Labs   :   01

Teaching Labs   :   04
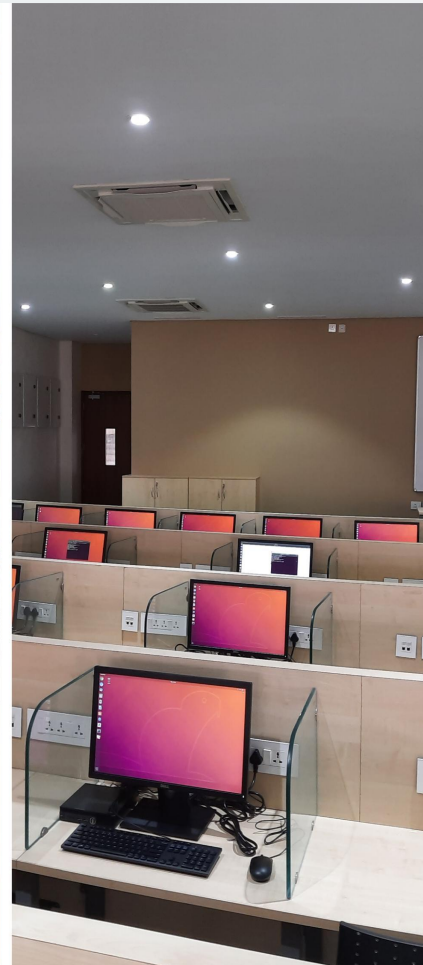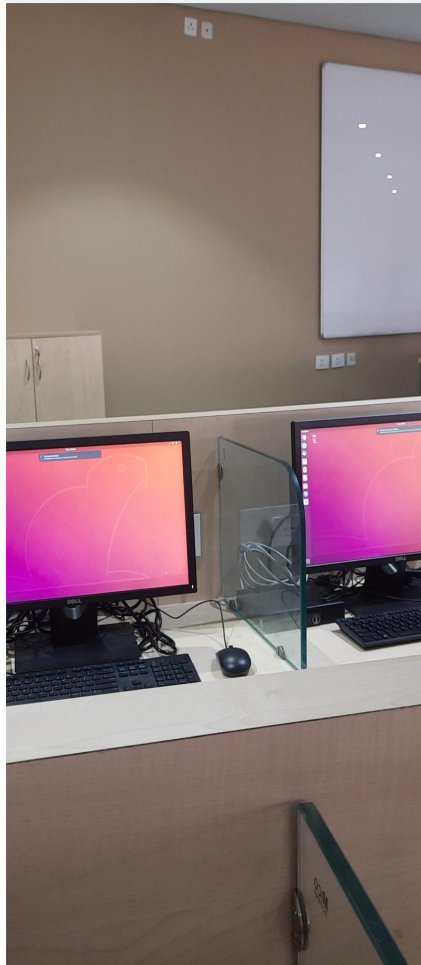
Introduction

Students get hands-on experience with a variety of software and operating system tools in this lab. Here, network and pervasive labs are being run.

Applications Used

WireShark
TraceRoute
VirtualBox
Openjdk Tools
Ifconfig
dig
arp
netstat
telnet
ping
top
wall
uptime
Nslookup
dnsutils
net-tools

Operating System

Ubuntu 20.04

List of Courses Taught
Networks Lab
    Computer Network
    Real Time Systems
    Network Security
    Network Programming
    Computer Architecture
    Advanced Computer Networks

Pervasive + Multimedia Lab
    Software for Embedded Systems
    Software Development for Portable Devices
    Internet of Things: Design and Development
    Pervasive Computing

Introduction

Students get hands-on experience with a variety of software and operating system tools in this lab. Here, language and database labs are being run.

Applications Used

mysql-server
my
sql-client
ssh
g++
gcc
gcc-doc
gcj-jdk
openjdk-8-jdk
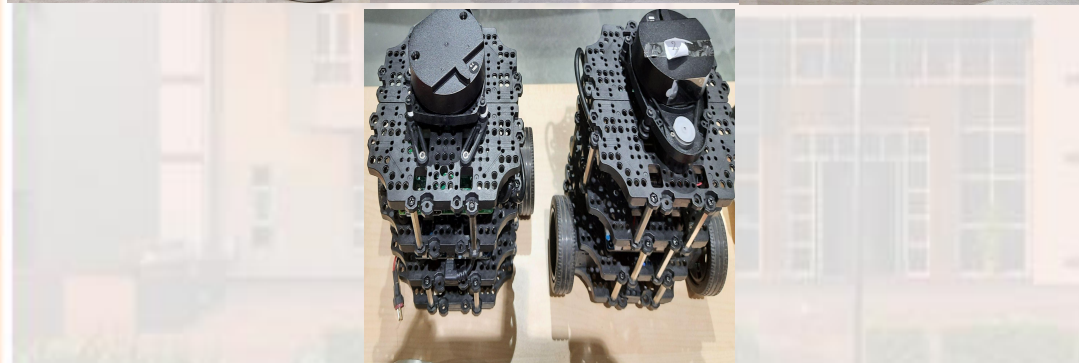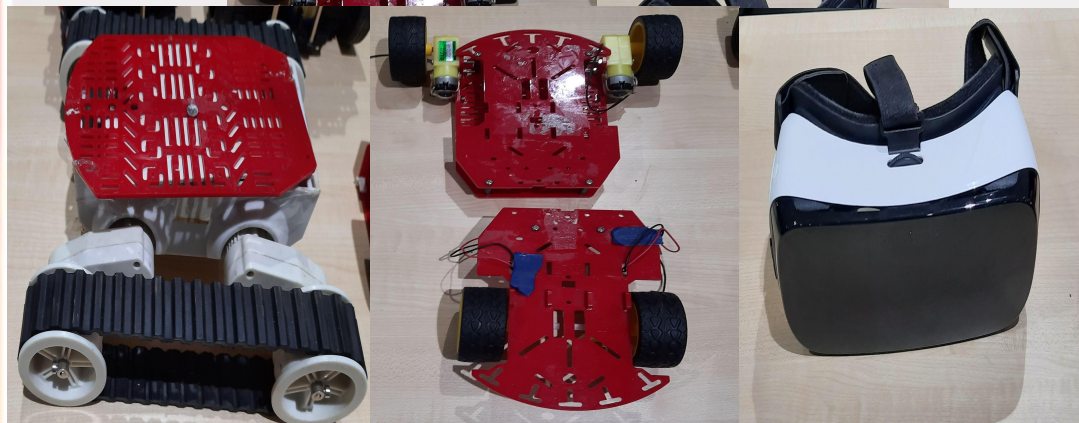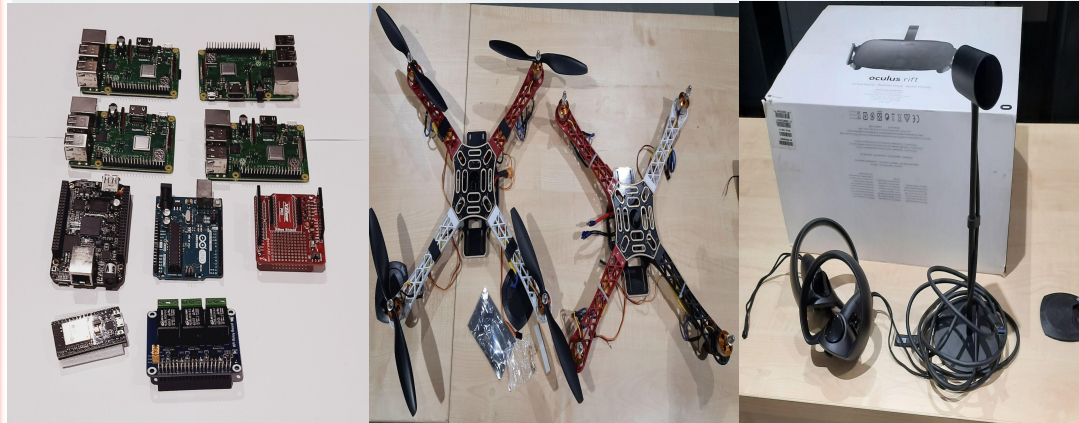virtualbox
eclipse
ipython

Operating System

Ubuntu 20.04

List of Courses Taught
Language Lab

  Data Structure and Algorithms
  Database Systems
  Object Oriented Programming
  Compiler Construction
  Computer Programming

Introduction
Students from the CSIS department perform projects and research in this lab.

Operating System
Ubuntu 20.04

Equipments in Research Lab

Raspberry Pi	MEMSIC
Raspberry Pi Relay Board	Breakout Board
Beagle Board	Desktop
ARDUINO	Soldering Iron
XBee PRO	Cable Assembly Flat
NODEMCE	Multimeter Digital Handheld
USB Controller	MSP-FET430UIF
ZIBEE	ULTRASONIC
RF Transceiver	WIPI Dongle
Discovery Kit	PIFACE Digital
Bread Board	Velbon Tripod
Camera Module	Power Supply Raspberry
VR Headset	Cubic Truck

Introduction

HPC Cluster, DGX-0, and DGX-1 computers make up the Data Center. It has been centered in the Computer Science and Information Systems department, which can be accessed from all of BITS other campuses, as well as from other universities across the world.

HPC Cluster

HPC cluster colored green has two master nodes, nine compute nodes, two IO nodes, and one NAS/SAN storage.

Network Switch
Mellanox IB Switch
unmanaged Network Switch
Managed Network Switch
Master 1

Master 2
Fujitsu Compute Node 1
Fujitsu Compute Node 2
Fujitsu Compute Node 3
Fujitsu Compute Node 4
Fujitsu Compute Node 5
Dell 4 Compute Node
Dell IO Node 1
Dell IO Node 2
Dell NAS/SAN Storage

HPC Cluster

HPC Cluster

MASTER NODE 1 Dell Poweredge R 830 is 2U rack server Processor Intel® Xeon® processor E5-4600 v4 product family RAM 32 GB Storage ~ 4.7TB CPUs 20 CPU 2.6GHz Core per CPU 200 [20x10]

MASTER NODE 2 Dell Poweredge R 730 is 2U rack server Processor Intel® Xeon® processor E5-2600 v4 product family RAM 32 GB Storage ~6TB CPUs 16 CPU 1.7GHz Core per CPU 128 [16x8]

PowerEdge C6420 NODE 1, 2, 3, 4 PowerEdge C6420 is ideal for high performance hyperscale workloads. With 4 nodes in a 2U form factor, it maximizes density, scalability, and energy efficiency per U. Processor Intel Xeon Gold 6248 2.5G, 20C/40T, 10.4GT/s, 27.5M Cache, Turbo, HT each RAM 192 GB total [16GBx12] Storage 1.2TB CPUs 160 [40x4] [Node 1, 2, 3] CPU 2.5GHz [Node 4] CPU 3.9GHz Core per CPU 3200 [20x160]

FUJITSU COMPUTE NODE 5,6,7,8,9 Dell Poweredge R 730 is 2U rack server Processor Intel® Xeon® processor E5-2600 v4 product family each RAM 32 GB Storage 500GB CPUs 40 [8x5] CPU 3.2GHz Core per CPU 320 [8x40]

PowerEdge R740 Server [Dell IO Node-Qty-2] Processor Intel Xeon Gold 5215 2.5G, 10C/20T, 10.4GT/s, 13.75M Cache, Turbo, HT each RAM 192GB total (16GBx12) Storage 1.2TB each CPUs 40 [20x2] CPU 2.5GHz Core per CPU 400 [40x10]

Dell EMC ME4084 Storage Array [Dell NAS/SAN Storage] Storage 2.4TBx53=127.2TB HDD 480GB SSD

DGX-0 and DGX-1

DGX-0 GPUs 4X NVIDIA A100 GPU Memory 32 GBx4 NVIDIA CUDA Cores 20 CPU Single AMD 7742, 64 cores, 2.25GHz (base)–3.4GHz (max boost) RAM System Memory 256 GB DDR4 Storage OS: 1x 1.92 TB NVME drive Internal storage: 7.68 TB U.2 NVME drive

DGX-1 GPUs 8X NVIDIA® Tesla® V100 GPU Memory 256 GB NVIDIA CUDA Cores 40,960 CPU Dual 20-Core Intel Xeon E5-2698 v4 2.2GHz RAM System Memory 512 GB 2,133 MHz DDR4 RDIMM Storage 4x 1.92 TB SSD RAID 0

Lenovo Master Node for DGX-1 2U rack-mount. RAM 128GB Storage 40TB

Practice School 2020 - 2021

Code	Program	PS - I (2nd)	PS - II (1st + 2nd)	PPO	% Placed
A7	B.E. Computer Science & Information Systems	337	93 + 109 = 202	57	28
H103	M.E. Computer Science & Information Systems		0 + 39 = 39	29	74

Course Summary Jan - Dec (2021) , FD & HD

	Jan - May (2021)	Aug - Dec (2021)
Total Number of Courses	25	26
Core	9	10
Elective	12	12
No. of WILP Courses	4	4
No. of SOP/ LOP / DOP / SP	87 + 36 + 52 + 2 = 177	80 + 36 + 43 + 1 = 160

Thank You

innovate   achieve   lead