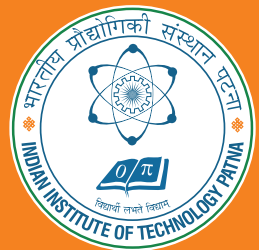




PLACEMENT BROCHURE

M.TECH. 2015-17

Computer Science & Engg.



INDIAN INSTITUTE OF
TECHNOLOGY PATNA

About Us:

A journey to the global academic summit that touches every aspect of national life in its wake is the primary goal of the department. The M.Tech. Computer Science department came into existence in 2012 with minuscule faculty strength and minute postgraduate student body. This inadequacy was no deterrent to its bold decision to start the doctoral program right away.

The department has not looked back since then. It has witnessed a manifold raise in the size of the vibrant student body. Presently, all efforts are geared towards making this the first choice of aspiring postgraduates. This is being groomed to be the favored destination for research scholars brimming with ideas. Faculty strength is all set to multiply many times over with the planned addition of young and dynamic persons flashing enviable academic and research records. The department boasts of generously equipped teaching and research laboratories. Doctoral candidates are liberally supported either by scholarships or by sponsored fellowships.

Sponsored research and developmental activities add muscle to the buzzing academics.

Future beckons this young department.

Courses:

Program Core:

Foundation of Computer Systems

Foundation of Theoretical Computer Science

Data Structure and Algorithms

Probability Statistics and Stochastic Processes

Electives:

Machine Learning

Artificial Intelligence

Introduction to Network Science

Natural Language Processing

Wireless Networks

Computer Network Security

Distributed Systems

Formal Methods and Analysis

Projects:

Sponsored Projects:

Title : Vehicular Sensor and Mesh Networks based Future ITS
Principal Investigator : Dr Rajiv Misra, Department of Computer Science and Engineering
Co-Principal Investigator : Dr Preetam Kumar, Department of Electrical Engineering
Sponsoring Agency : Department of Information Technology, Govt. of India

Title : Development of a system to identify, filter and traceback network security attacks
Principal Investigator : Dr.Ashok Singh Sairam, Department of Computer Science and Engineering
Co-Principal Investigator : Prof. R.S. Ramakrishna, Department of Computer Science and Engineering
Sponsoring Agency : Dept. of Information Technology, Govt. of India

Title : Development of authentication and key management for battle field communication network
Principal Investigator : Dr. Somanath Tripathy, Department of Computer Science and Engineering
Co-Principal Investigator : Dr. Somanath Tripathy
Sponsoring Agency : Centre for Artificial Intelligence and Robotics, DRDO

Title : Development of an efficient authentication scheme to be used in public domain.
Principal Investigator : Dr. Samrat Mondal
Sponsoring Agency : Department of Science and Technology, Govt. of India

Title : Optimization Techniques for Human Language Technology
Principal Investigator : Dr. Asif Ekbal and Dr. Sriparna Saha
Sponsoring Agency : Australia-India Strategic Research Fund (AISRF)-2012, Rs. 4.82 lakhs

Title : Development of Some Novel Methods for Semi-supervised Machine Learning
Principal Investigator : Dr. Asif Ekbal and Dr. Sriparna Saha
Sponsoring Agency : TDIL Programme, Department of Electronics & IT for Rs. 30 lakhs(approved).

R&D and Industrial Consultancies:

Title:"Data Science Programs" on NLP and Machine Learning
Principal Investigator:Dr. Asif Ekbal and Dr. Sriparna Saha
Co-Principal Investigator:
Sponsoring Agency:TCS, Rs. 2.2 Lakhs

Title : On Increasing Concurrency in Transactional Memory Systems January 2013 – June 2014
Principal Investigator : Dr. Sathya Peri
Co-Principal Investigator :
Sponsoring Agency : NetApp Bangalore for USD 25,000 (~ Rs. 12.5Lakhs).

Title:Building an Efficient STM System using Conflict-Graphs", October 2011 – October 2012
Principal Investigator:
Dr. Sathya Peri
Co-Principal Investigator:
Sponsoring Agency:NetApp Bangalore for USD 5,000 (~ Rs. 2.25 Lakhs)

Title : "Data Science Programs" on NLP and Machine Learning
Principal Investigator : Dr. Asif Ekbal and Dr. Sriparna Saha
Co-Principal Investigator :
Sponsoring Agency : TCS, Rs. 2.2 Lakhs

Research Labs:

Research Vision of the Department

- To evolve into a powerhouse of excellence in CSE education and research
- Become a globally recognized centre for Computer Education with world class research output

A total of four students with Doctoral Degree have graduated from the Department of Computer Science & Engineering. These students have secured Faculty Positions at Universities of repute



Research Lab I: Elsevier Centre for Excellence of Natural Language Processing

Aim: To conduct research and development in some of the cutting edge areas of Artificial Intelligence, Natural Language Processing and Machine Learning

Important Publications

- S. Akhtar, A. Ekbal and P. Bhattacharyya (2016). Aspect based Sentiment Analysis in Hindi: Resource Creation and Evaluation. In proceeding of the 10th edition of the Language Resources and Evaluation Conference (LREC), 23-28 May 2016, Portorož, Slovenia.
- S. Akhtar, A. Ekbal and P. Bhattacharyya (2016). Aspect Based Sentiment Analysis: Category Detection and Sentiment Classification for Hindi. In Proceedings of 17th International Conference on Intelligent Text Processing and Computational Linguistics (CICLING), April 3–9, 2016, Konya, Turkey.

Research Lab II: Shusrut: ezDI Research Lab on Health Informatics

Aim: To conduct research and development in some of the crucial issues having great impact on health care based on Natural Language Processing and Machine Learning

- Ekbal and S. Saha (2015). Joint model for feature selection and parameter optimization coupled with classifier ensemble in chemical mention recognition. Knowledge based Systems, Elsevier, Vol. 85, PP. 37-51.
- Saha, A . Alok and A. Ekbal (2016). Brain Image Segmentation using Semi-Supervised Clustering. Expert Systems with Applications, Elsevier. Vol. 52, PP. 50-63

Research Lab III: Advanced Computing Lab

Aim: This proposed Advanced Computing lab will cater to the needs of computing resources for applications such as Large Scale Distributed Computing, Cloud Computing, High Performance Computing and Big Data Computing. Besides, setting up a private cloud, hybrid cluster and accelerators for many cores/threads, the computing will be extended for public cloud, grid. The researchers can develop prototypes and test on advanced computing facilities.

Research Lab IV: Embedded Systems Integration Lab

Aim: To act as a key enabler and catalyst for Embedded System Education. To Innovate, enterprise and take leading role in R&D of Embedded System Engineering.

Specifically, to promote design and development of hardware based system for Improving the quality of life. Intel has donated a number of Galileo boards and Grove starter kits. Embedded Systems, IoT and OS supporting tools from ARM university program is being acquired. Students from various departments will be using this facility for project/research work. Currently this lab is operated from Hardware lab of CSE dept.

Key Projects Undergoing

- Information Leakage Analysis of Database Query Languages: Sponsored by Science & Engineering Research Board (SERB), DST, Govt. of India
- Development of an efficient authentication scheme to be used in public domain: Sponsored by Science & Engineering Research Board (SERB), DST, Govt. of India
- Development of solution to defend against Collaborative attacks in Peer-to-Peer networks: Sponsored by Department of Information Technology, Govt of India
- Vehicular Sensor and Mesh Networks based Future ITS: Sponsored by Department of Information Technology, Govt of India
- Tunable Synchronization of Spatially Distributed Cyber-Physical Systems: Sponsored by DST- DAAD Project based Personnel Exchange Programme
- Bandwidth estimation and hop-to-hop capacity estimation algorithm(s): Sponsored by Meritech Software Pvt. Ltd.
- Centre of Excellence for Natural Language Processing-IITP : Sponsored by Elsevier
- Shusrut: ezDI Research Lab on Health Informatics-IITP: Sponsored by ezDI
- IITB-IITP-NLP-ML: Sponsored by IITB, IITP

M.Tech. Computer Science & Engg. Faculty Group



Prof. Pushpak
Bhattacharyya

Director, IIT Patna

Research areas:

Natural Language Processing, Machine Learning,
Cross Lingual IR, Information Extraction

Research areas:

Natural Language Processing , Data Mining and
Machine Learning Applications, Information
Extraction, Bio-text Mining, Machine Learning in
Social Networks



Dr. Asif Ekbal

Research areas:

Pattern Recognition, Multi-objective
Optimization, Bio-Text Mining, Bioinformatics,
Soft Computing



Dr. Sriparna Saha

Research areas:

Fault Tolerant Computing, VLSI.
Design and Methodologies, Reliability Aware
Designs, Hardware Security etc.



Dr. Jimson Mathew



Dr. Arijit Mondal

Research areas:

CAD for VLSI, Analog EDA

Research areas:

Fault Tolerant Computing, VLSI.
Design and Methodologies, Reliability Aware
Designs, Hardware Security etc.



Dr. Rajiv Misra



Dr. Joydeep Chandra

Research areas:

Peer-to-Peer Systems, Online Social Networks,
Complex Networks, Distributed Systems
Other interest

Research areas:

Network Security, Routing in Wireless Networks, Network Bandwidth Monitoring and Management



Dr. Ashok Singh Sairam

Research areas:

Online Algorithms, Complex Networks, Social Networks, Big Data



Dr. Abyayananda Maiti



Dr. Samrat Mondal

Head, Department of Computer Science & Engineering

Research areas:

Security & Privacy and Database Systems



Dr. Suman Kumar Maji

Research areas:

Image Processing, Medical Imaging, Bioinformatics, Computer Vision

Associate Dean, Academic

Research areas:

Lightweight Cryptography, Computer Security, Network Security



Dr. Somanath Tripathy

Research areas:

Wireless Networking
Mobile Social Computing
Human Computer Interaction



Dr. Sourav Kumar Dandapat



Dr. Raju Halder

Research areas:

Formal Methods, Abstract Interpretation, Programming Languages, Static Analysis and Verification, Databases.

Testimonials from Leading Recruiters

"Very committed and passionate about new technology. Showed a lot of enthusiasm and confidence in picking up new task and finishing them on time".

- Microsoft

"Quick learners and very strong on fundamentals. They start contributing towards the success of the team from the day one."

- Amazon

"They have made an outstanding contribution to meet our customers need."

- LG Soft India

"Students at IIT Patna were very enthusiastic and took initiative. They have enormous opportunity to explore and move ahead in their professional spheres."

-Flipkart

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