



**INDIAN INSTITUTE OF TECHNOLOGY**  
**Patna**

**Department Of  
Computer Science  
and Engineering**

**PLACEMENT  
BROCHURE  
2023 - 24**

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## About the Department

The department of Computer Science and Engineering came into existence in 2008 with minuscule faculty strength and a minute undergraduate student body. This inadequacy was no deterrent to its bold decision to start the doctoral program right away. The department offers Bachelor's degrees in Computer Science and Engineering (CSE), Master's degrees and PhD in various specialized areas of Computer Science. The department stands strong today, boasting of a multitude of accomplished faculty members, and a vibrant student body. The department is all set to extend collaborations with more universities across the world, harbouring new ideas and providing solutions to industrial and government projects. The department boasts of generously equipped teaching and high-performance industrial-grade research laboratories. Doctoral candidates are liberally supported either by scholarships or by sponsored fellowships. Sponsored research and developmental activities add muscle to buzzing academics.



## HoD's Address



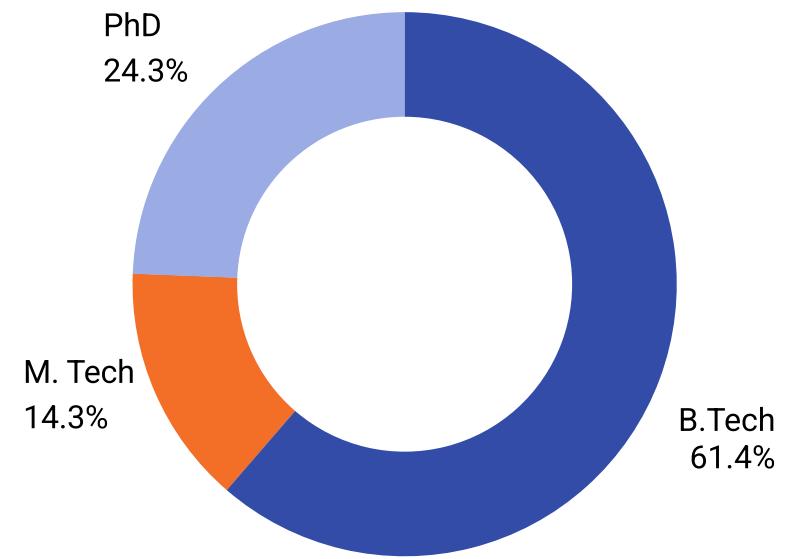
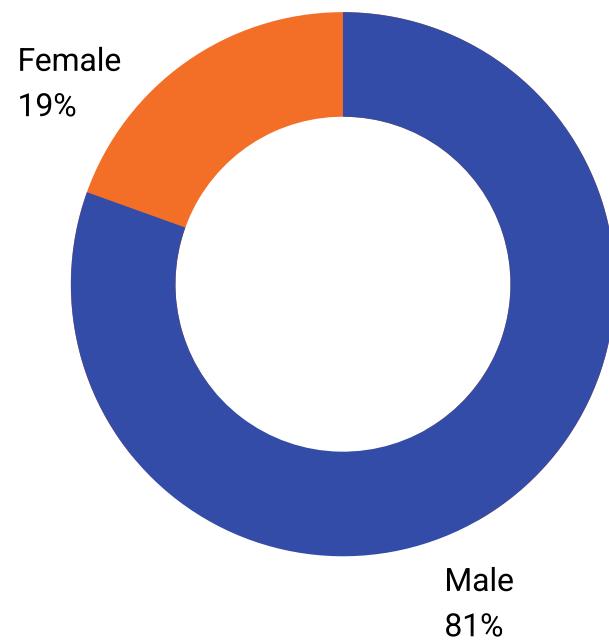
Dr. Rajiv Mishra

The department of Computer Science and Engineering was among the first engineering branches to be set up at IIT Patna in 2008. Since then, the department has never failed to achieve. The academic curriculum is constantly revised to keep in pace with the current industry and research trends, the last revision being in 2015. In order to allow students flexibility in choosing their subjects of interest, over the years, the number of elective courses has been tremendously increased. With a view of encouraging creative and novel ideas, the department introduced a lab course on Innovative Design in the undergraduate programme. The department lays great emphasis on research and development. The department has close interaction with the industry and research institutes both in India and abroad. Research labs have been set up in the department in collaboration with the industry and government agencies - Elsevier Centre for Excellence of Natural Language Processing; ezDI Research Lab on Health Informatics, Network Security Lab; Advanced Computing Lab and Embedded Systems Integration Lab.

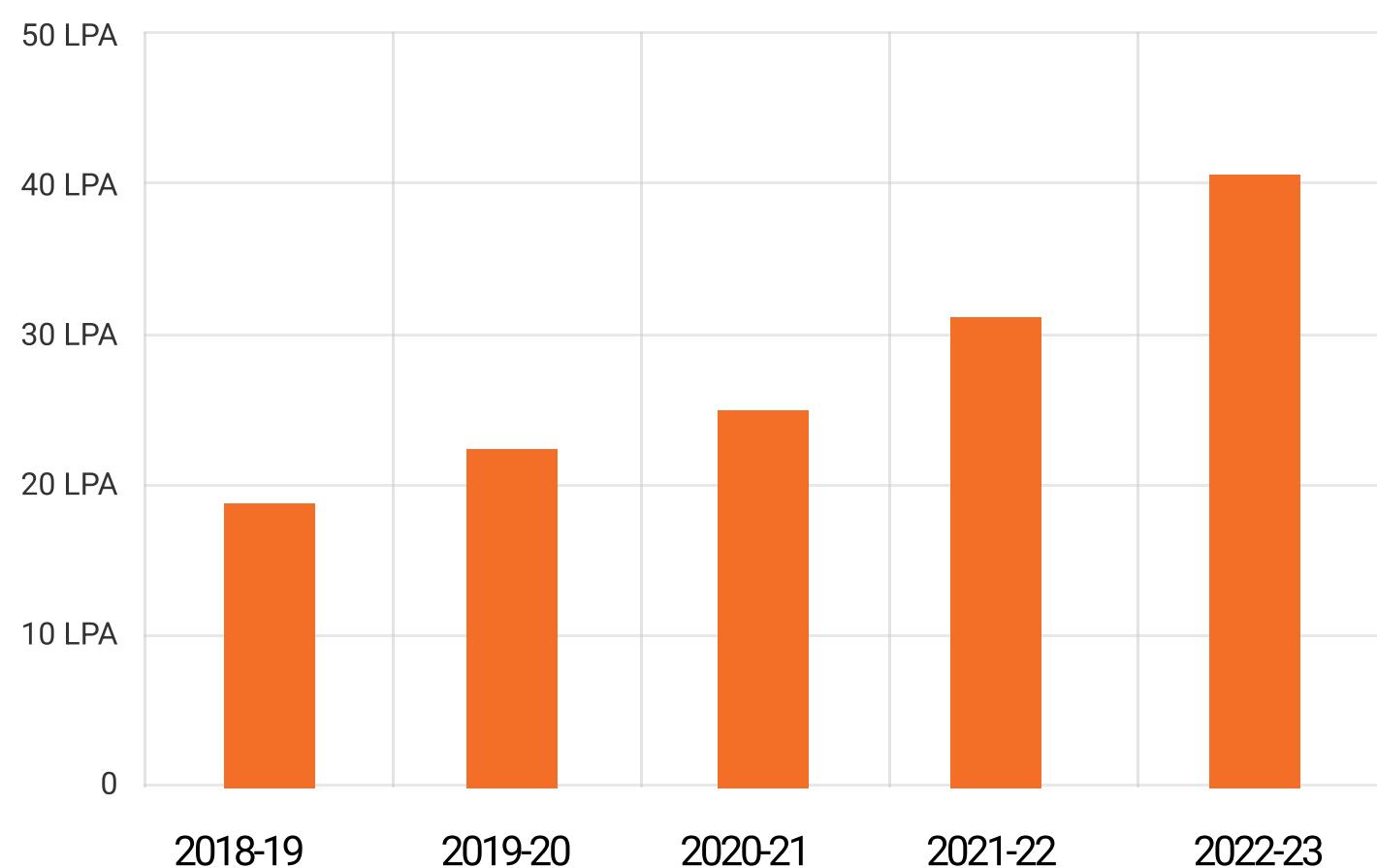
A number of high value sponsored research projects are running in the department. The faculty members of the department have received recognition, our names (Dr. Asif Ekbal and Dr. Sriparna Saha) are also included in the list of the top 2% Scientists of the world, published by Stanford University and Elsevier and a number of awards for their work - ACL President, 2016 (the highest body of NLP); Eminent Engineer Award by Institute of Engineers; NASI young scientist platinum jubilee award, 2016; BIRD Award 2016; IEI Young Engineers Award 2016 (Computer Engineering Discipline); Junior Humboldt Research Fellowship; JSPS Fellowship from Japan Govt. among others. This brochure has been designed to cater to a wide range of people who often seek specific information about the department and courses that we offer. To this end, we have compiled a set of useful information for individuals/ organizations interested in our programs, our research endeavours, as well as information regarding the faculty. I hope you will find the information helpful. For any additional information, please do not hesitate to contact us.

# Placements and Demographics

## Demographics



## Average Placement Salaries



# Courses offered

## CORE

- |                                       |   |
|---------------------------------------|---|
| Operating Systems                     | Machine Learning                            |
| Database Management System            | Natural Language Processing                 |
| Computer Networks                     | Artificial Intelligence                     |
| Computer and Network Security         | Pattern Recognition                         |
| Principle of Programming Languages    | Computer Graphics                           |
| Formal Language and Automation Theory | Introduction to Network Science             |
| Software Testing                      | Introduction to VLSI CAD                    |
| Compilers Study                       | Wireless Networks                           |
| Deep learning                         | Distributed Systems                         |
| advance machine learning              | Formal Method for verification and analysis |
| Bayesian data analysis                | Computer vision                             |
|                                       | Big data analytics                          |
|                                       | Big data security                           |

## MATHEMATICS AND COMPTING

- |                         |   |
|-------------------------|---|
| OOP and Data Structures | Computational Topology                  |
| Algorithms              | Probability Theory and Random Processes |
| Advanced Graph Theory   | Complex Analysis and Fourier Series     |
| Discrete Mathematics    | Theory of Computation                   |
| Optimization techniques |   |

## DEVICES

- |  |                                      |
|--|--------------------------------------|
| Computer Organisation and Architecture | Computer Peripherals and Interfacing |
| Switching Theory                       | Digital Design                       |

# Faculty's Words



Dr. Somnath  
Trypathy

"The Computer Science and Engineering Department, IIT Patna was established in 2008. The objective of the department is to offer high quality education and cutting-edge research opportunities to its students, enabling them to solve more practical problems relevant for society and share skills and knowledge with the community. Keeping this in mind, the curriculum has been designed to prepare our students to be entrepreneurs and academic leaders. To facilitate this innovation lab is introduced at the mid stage of the B.Tech curriculum. The department offers a wide range of electives including Blockchain, Cryptography, Machine Learning, Data Science, Deep Learning, Distributed Systems, Security, Natural language processing, Advance algorithms, Embedded system, Cloud computing. Besides this, our students actively participate in the Computer Science Club of IIT Patna namely NJACK conduct different coding contests making ready the new entrants."



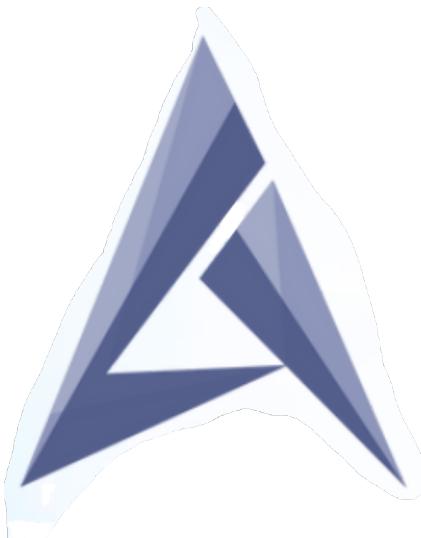
Dr. Rajiv Mishra

"The Students of this Institute, as witnessed over the past years have contributed meaningfully to any endeavor they have joined. Students have ventured into fields like AI (Artificial Intelligence), NLP (Natural Language Processing), Cloud Computing, IOT (Internet of Things) and Edge Computing. The students have a strong mathematical background and analytical problem-solving abilities, all of which add to their repertoire of ways to contribute and solve problems."

# Student Organisations



**NJACK** - Not Just Another Computer (K)Club is the official Computer Science society of IIT Patna. It acts as a forum for discussion and exchange of ideas and experiences on various topics related to programming and problem solving among its members. It regularly and actively holds sessions in Competitive Programming, Machine/Deep Learning, Web and App development, Cyber Security to foster a community of mutual growth and achievement. It promotes and ensures participation of students in various nationally and internationally renowned coding competitions, hackathons and conferences. It is the society which aids students in interview preparations and securing research internships.



**Apeiron** is the annual Coding Fest of Computer Science Engineering Department of IIT Patna, where a lot of online events are organized with massive participation from all over the world (1500+). Apeiron is not just an old school departmental fest but is packed with a multitude of fun events, hackathons and workshops to help students develop technical skills, brainstorm and learn in an exciting way. It is an effort to give students, an immersive exposure and opportunity towards the various aspects of Computer Science. Some of the challenges like Linux Desktop Customization, Hacking Challenge, Mystery Language, CodeGolf, CodeSprint were greatly applauded by the programming community worldwide in it's last edition.



**CODE PEAK** is a month-long program that helps students understand the paradigm of Open Source contribution and gives them real-world software development experience. The event targets first-timers who wish to participate in Free and Open Source(FOSS) Contributions and the experienced developers who want to show their skills by contributing to real-world projects.

# Industry Sponsored Clubs



**DSC IIT Patna** powered by **Google Developers** believe in building a community that follows the principal of 7 Ps that stands for People, Purpose, Place, Participation, Policy, Promotion and Performance. We are building a great community that can create an impact through technology by innovation and participation of all of its members, developing various projects over time.

**NWoC (NJACK Winter of Code)** is a program by NJACK (The Official Computer Science Club of IIT Patna) that helps students understand the paradigm of Open Source contribution and gives them real world software development experience. 100+ projects in all domains of Computer Science and 3000+ participation from 400+ colleges across the world is observed during NWoC. It is often sponsored by GitHub, Jet Brains and DigitalOcean. It also aims to prepare them for bigger programmes and opportunities like Google Summer of Code, Outreachy etc.

**CodeChef** Campus Chapter IIT Patna aims at bringing brilliance into the stream of competitive programming within the college using CodeChef resources and platform. It organizes regular meetups, contests, workshops under the NJACK Competitive Programming department.

# Other Programs



Global Initiative for Academic Networks (GIAN), a program approved by the MHRD, Government of India, is aimed at tapping the talent pool of scientists and entrepreneurs, encourages their engagement with the institutes of Higher Education of India. Time to time GIAN courses and workshops are conducted with a great involvement of students.



Institute of Electrical and Electronics Engineers (IEEE), Student's Branch, of IIT Patna opened with a group of students enrolled in various M.Tech and PhD courses with a view to promote technical activities in the campus, city and the state of Bihar. Now with the involvement of B.Tech students too, the branch organizes yearly lectures, IEEE programs and conferences.



The Continuing Education Programme (CEP) activity has been set up to meet the manpower training and knowledge upgradation needs of the industry, academia, and research organizations. The main aim of CEP of Indian Institute of Technology Patna is to impart knowledge related to the frontiers in science, technology, and management to the people, who want to upgrade their knowledge relevant to their field of interest.



# Students' Achievements

## ACM ICPC

- 'Butterroti', a team from IIT Patna qualified for ACM-ICPC world final for two years consecutively in the years 2018 and 2019.
- This year, a total of 8 teams qualified for ACM ICPC Regionals securing their rank under top 300 in India where our top team had the Rank 18. One team qualified for Asia West finals by having 4th rank in Kharagpur regionals and then secured the 22nd rank at Asia West Finals.
- 3 teams from IIT Patna in top 15 in ICPC Amritapuri 2021 Regionals

## Google Summer of Code

In the past six years, a total of 36 students have been accepted as a part of the Google Summer of Code program, including 6 students in their freshman year. It is a very prestigious program by Google to encourage open source contributions by students for which they get a stipend of \$3000.

## Inter IIT Tech Meet

IIT Patna stood overall at 9th position among all IITs in the Inter IIT Tech Meet 2022, winning 1 Gold, 1 Silver and 1 Bronze medal in highly contested events.



# Achievements

- IIT Patna ranks 1st in India and 13th in Asia in Natural Language Processing as per CS Rankings
- IIT Patna currently has 1 Grand Master, 1 Master and 7 Candidate Masters (top 1 - 5%) as rated on Codeforces.
- A team of IIT Patna students won 1st prize in the IEM AI Olympiad 2019.
- Team 'Kisaan Connect' from IIT Patna, won 2nd prize, at the grand finale of Hackathon v2.0 mobile app development contest.
- A student received a \$10000 reward by being selected for Adobe Women-In-Technology scholarship. Another student got selected for the Women Techmakers Scholarship.
- Students from the institute have frequently received DAAD-wise fellow scholarships.
- Tirthankar Ghosal's (Visvesvaraya PhD Fellow) writeup came within the Top 100 AWSAR\_DST awards of 2018 in the PhD category where he poured PhD vision and investigations into simplified words.
- Team "Squirtle Squad" represented Indian Institute of Technology, Patna at the 44th World Finals of International Collegiate Programming Contest (ICPC) hosted by the Moscow Institute of Physics and Technology. This is the third time that a team from IIT Patna has qualified for the world finals.



# Achievements

- Sudipta Acharya (PhD/CS/13) received "Outstanding Postdoctoral Inbound Award 2019" from Shenzhen University China for excellent research publications in the field of computational Biology and pattern recogniti during PhD.
- Dr Debasis Das (PhD/CSE/16, Asst. Professor IIT Jodhpur, ex- BITS Pilani) has achieved Early Career Research (ECR) award from Science and Engineering Research Board.
- A student team competed in the Asian College Robotics competition, ABU Robocon and secured 2nd rank in the first stage and 21st in the second stage and allowed uto compete in the finals at IIT Delhi.

Students from IIT Patna have been invited for the following esteemed summits/conferences from the present batches:

- OpenPOWER Summit, North America San Diego 2019.
- KubeCon & CloudNativeCon Europe 2020 in Amsterdam
- Open Source Summit Japan
- Honeynet 2019 Annual conference/workshop, Austria
- Automotive Linux Summit 2019 in Tokyo
- FOSSASIA Open Tech Summit 2019 in Singapore.



# Professors' Achievements

- Prof. Pushpak Bhattacharyya: Eminent Engineer Awardee. IIT Patna director is amongst the top ten AI researchers in India.
- Profs elevated to the grade of IEEE Senior Member: Dr. Rajiv Misra, Dr. Sriparna Saha, Dr. Somanath Tripathy, Dr. Jimson Mathew.
- Dr. Asif Ekbal awarded JSPS Fellowship.
- Dr. Sriparna Saha awarded NASIYOUNG SCIENTIST PLATINUM JUBILEE AWARD and SERB Women in excellence award.
- Prof. Pushpak Bhattacharyya has been invited to be the chair for NLP in IJCAI 2016, a flagship conference in Artificial Intelligence.
- Dr. Sriparna Saha and Dr. Asif Iqbal have been ranked among the top 2% of scientists in the world by [Stanford University] (<https://www.linkedin.com/company/stanford-university/>). Every year Stanford University of US releases data for top two per cent of researchers across the world based on their research publications.

# Research at IIT Patna

IIT Patna's research performance is comparable to that of any institute of top caliber. In 2017, citation per faculty stood at about 5, and 350 high-quality papers got published. Even among the undergraduate students, research culture is introduced as early as in the second year through a course: Innovation Lab, in which students execute a project of their own choice in small teams of two or three people. A heavy emphasis is given to the thesis component of the post-graduate programs.

Our faculty members are handling sponsored projects from the major Governmental funding agencies, including DeitY, DST, ISRO, DRDO, and CSIR. Also, our Institute has a good share of projects from various Governmental schemes, including Impacting Research Innovation and Technology (IMPRINT) and Ucchatar Aavishkar Yojna (UAY). Presence of an Incubation Center (IC) and Technology Business Incubator (TBI) on our campus paves the way for the conversion of the research output into innovative products that can contribute to the society at large.

Current Research Area include but not limited to :

- NLP and deep learning
- Energy management & Intelligent Transportation systems
- Time-series Analysis
- Federated learning, Cryptography
- Social media Analytics
- Recommendation System
- Non-convex optimization
- Big data, IoT
- Human-Computer Interaction
- Computer Vision
- 802.11 Wireless Network

# Our Esteemed Alumni



Software Engineer  
Facebook, California



Software Engineer  
Amazon, Seattle



Assistant Professor,  
Georgia Tech University



Data Science Lead,  
Schlumberger;  
Co-Founder, Kredit  
Konnection;  
MS CS, University of  
Illinois at Urbana



User Experience  
Developer at Toyota  
Research Institute,  
Boston



Software Engineer  
Google, California

# Placement Procedure

1

Companies are contacted by the Placement office or Placement cell (authorized student representatives) and invitations are extended, providing relevant information.

2

Companies are given an exclusive login id in the website after they submit the filled-in Job Announcement Forms (JAF) via email or fax. The JAFs are made available online, which helps the willing students to register for the company.

3

The Placement Cell and the Company confer and finalize the date for pre-placement talks if necessary.

4

Each student who has registered for a particular company submits resume so that the company can shortlist the students accordingly.

5

A detailed schedule is prepared by the Placement Cell evaluating the job offer, prospects, student intake and the like. The schedule is confirmed with all the companies.

6

The companies/organizations visit the campus, meet the registered (or shortlisted) students, and conduct the interviews, tests or group discussion sessions in accordance with their respective recruitment process. The date of the interview and other sessions should be in compliance with the mutually confirmed schedule discussed earlier.

7

The companies are required to prepare and submit, with a written confirmation letter the list of students who are selected after the interview process, on the day of the interview itself.

**The job offer letters are to reach the Placement Cell, in due course of time. In case a student gets a job offer, he/she is not entitled to appear for further tests/interviews by any other company.**

# Past Recruiters

Google

amazon

Adobe

ARISTA



Microsoft

accenture

DE Shaw & Co

Bloomberg



cognizant

SAMSUNG

Deloitte.

BANK OF AMERICA

IBM

ATLASSIAN



Morgan Stanley

Goldman Sachs

CISCO

NetApp™

Code Nation

PLUTUS  
RESEARCH

SQUARE POINT



BOSCH

SIEMENS  
*Ingenuity for life*

hp

# Research Internships



Microsoft®  
**Research**

**RWTHAACHEN  
UNIVERSITY**

**Mitacs**

**UH UNIVERSITY OF  
HOUSTON**

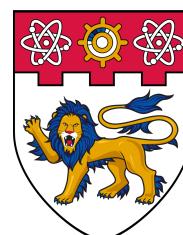


**NEW YORK UNIVERSITY**

**GT**  
Georgia  
Tech®



UNIVERSITY OF  
CAMBRIDGE



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY  
SINGAPORE**



**UNSW  
SYDNEY**



**東京大学  
THE UNIVERSITY OF TOKYO**



**國立清華大學  
NATIONAL TSING HUA UNIVERSITY**

**SUTD**  
SINGAPORE UNIVERSITY OF  
TECHNOLOGY AND DESIGN

# Contact Us



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## **Professor-In-Charge**

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