

Indian Institute of Technology  
Patna

भारतीय प्रौद्योगिकी संस्थान पटना

**PLACEMENT  
BROCHURE  
2020-21**

Department of  
Computer Science Engineering

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# About the Department

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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.

*Future beckons the young department.*



# HoD's ADDRESS



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

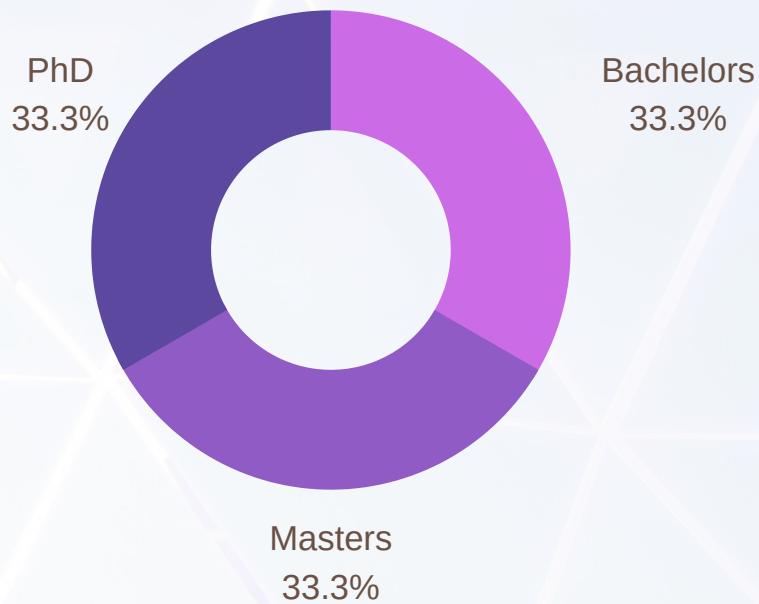
*Dr Jimson Mathew*

**HEAD OF DEPARTMENT**

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 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.



## PROGRAMS AND DEMOGRAPHICS





# COURSES OFFERED

CORE

- Operating Systems
- Database Management System
- Computer Networks
- Computer and Network Security
- Principle of Programming Languages
- Formal Language and Automation Theory
- Software Testing
- Machine Learning
- Natural Language Processing
- Artificial Intelligence
- Pattern Recognition
- Computer Graphics
- Introduction to Network Science
- Introduction to VLSI CAD
- Wireless Networks
- Distributed Systems

MATHEMATICS  
AND COMPUTING

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

DEVICES

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

# Faculty Speaks

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"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. SOMANATH TRIPATHY

"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."

DR. RAJIV MISRA

# STUDENT ORGANIZATIONS

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**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.

# INDUSTRY SPONSORED CLUBS

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Developer Student Clubs

Indian Institute of Technology Patna

**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



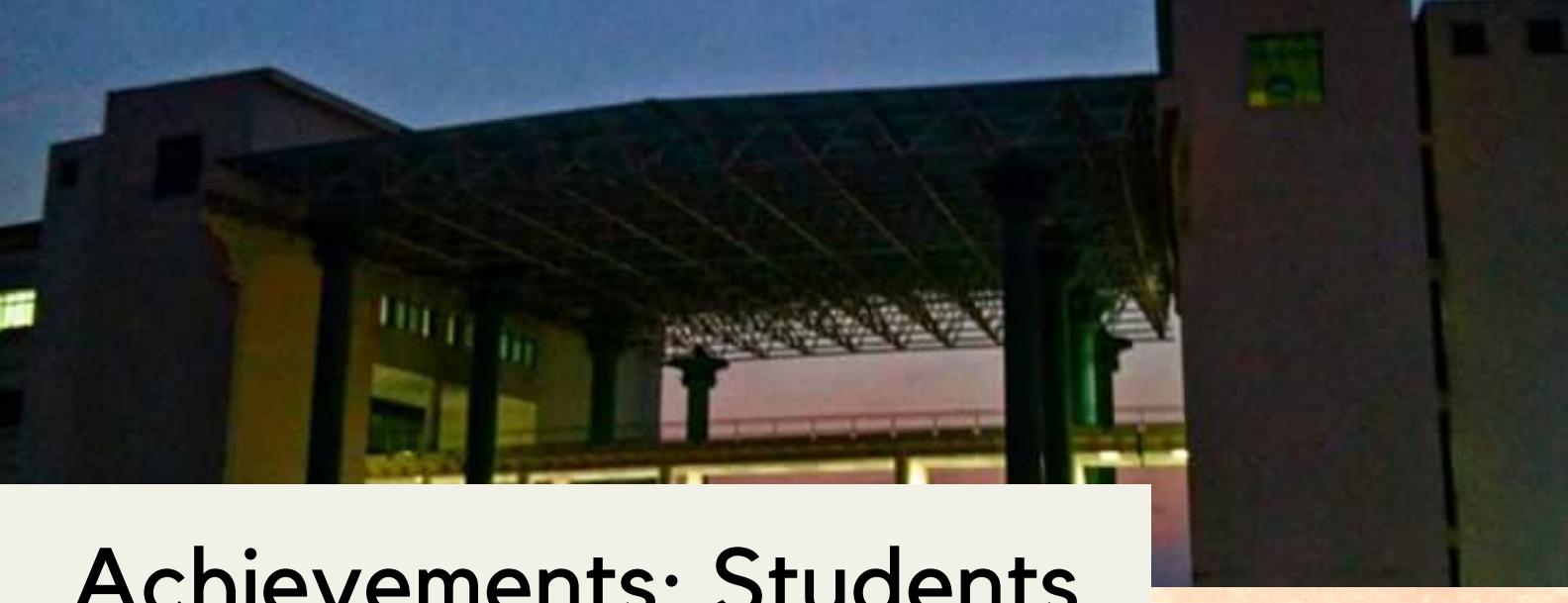
Global Initiative for Academic Networks (**GIAN**), a program approved by the MHRD, Government of India, is aimed at tapping the talent pool of scientists and entrepreneurs, encourages their engagement with the institutes of Higher Education of India. Time to time GIAN courses and workshops are conducted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



# Achievements: Students

## 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.

## Google Summer of Code

In the past three years, a total of 24 students have been accepted as part of the Google Summer of Code, including 6 in their very first year. The open-source culture has been proliferating in the institute

## Inter IIT Tech Meet

IIT Patna stood overall at 7th position among all IITs in the InterIIT Tech Meet 2019, above all 2nd generation IITs and tied with IIT Hyderabad.



# Achievements: Over the Years

- IIT Patna ranks **1st in India and 13th in Asia** in Natural Language Processing as per CS Rankings
- IIT Patna currently has 6 Masters (**top 0.5 - 1% coders worldwide**) and 8 Candidate Masters (**top 1 - 5% coders worldwide**) as rated on Codeforces.
- Team - Mom's Maggy (Chandresh, Saad, Rajeev) 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.
- Students from the institute have frequently received DAAD wise fellow scholarships, Adobe Research, Women-In- Technology Scholarship award, & Women Techmakers Scholarship.
- 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.



# Achievements: Over the Years

- 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 recognition 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 us to 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.



## Achievements: Professors

- 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.

# **OUR ESTEEMED ALUMNI**

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## **Kishore K Kolipaka**

- Data Engineer, Alexa, Amazon, Greater Seattle Area

## **Abhinav Kohar**

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

## **Saswat Raj**

- Software Engineer, Amazon, Doppler, Seattle

## **Ashutosh Agarwal,**

- Software Engineer, Google, Sydney

## **Gagandeep,**

- Assistant Professor, Georgia Tech, one of the top 5 universities

# 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

# PAST RECRUITERS & INDUSTRY INTERNSHIPS



< CODE\_NATION >



# RESEARCH INTERNSHIPS & FELLOWSHIPS



Microsoft  
Research



東京大学  
THE UNIVERSITY OF TOKYO



Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service



USC University of  
Southern California



國立清華大學  
NATIONAL TSING HUA UNIVERSITY



NUS  
National University  
of Singapore



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT



NANYANG  
TECHNOLOGICAL  
UNIVERSITY  
SINGAPORE



NEW YORK UNIVERSITY

UNIVERSITY OF  
HOUSTON

RWTH AACHEN  
UNIVERSITY



Leibniz  
Universität  
Hannover



Mizzou  
University of Missouri



UNSW  
SYDNEY



SINGAPORE UNIVERSITY OF  
TECHNOLOGY AND DESIGN



Mitacs

Indian Institute of Science

# 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.

# Contact Us

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