

# Kautuk Raj

Computer Science and Engineering  
International Institute of Information Technology, Bangalore

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## Academic Details

Year	Degree	Institute	CGPA/%
2019-2024	Integrated M.Tech in Computer Science and Engineering	International Institute of Information Technology, Bangalore	3.81/4.00
2019	Class XII, ISC	Narbheram Hansraj School, Jamshedpur	97%
2017	Class X, ICSE	Rajendra Vidyalaya, Jamshedpur	97%

## Relevant Courses

- **Computer Science:**

Data Structures and Algorithms, Computer Architecture, Computer Networks, Design and Analysis of Algorithms, Database Systems, Software Engineering, Theory of Computation, Machine Learning, Cloud Computing, Cybersecurity, Multi-Agent Systems, Operating Systems, Programming Languages, Software Architecture, Software Testing, Software Production Engineering

- **Mathematics:**

Calculus, Linear Algebra, Differential Equations, Probability and Statistics, Mathematics for Machine Learning

## Internships

- **Laboratoire Hubert Curien, Université de Lyon, France**

*(September, 2023 - December, 2023)*

- Part of a health informatics project jointly run by Laboratoire Hubert Curien, York University and The QA Company.
- The work is supervised by Prof. Pierre Maret (Université Jean Monnet) and Prof. Christo El-Morr (Principal Investigator from York University, Canada).
- Developed a novel method to query websites, documents, and tables through a natural language interface using large language models, knowledge graphs, and a question-answering system generator. Proposed an approach to extract tables from PDFs and convert them to knowledge graphs to enable querying PDF text and tables simultaneously, overcoming limitations of language models.
- Disseminated my work through posters and presentations at IEEE Saint Etienne Innovation Day and Manutech-SLEIGHT Science Event #11. Work on short and full papers underway.

- **MathWorks, Bangalore, Engineering Development Group**

*(May, 2023 - July, 2023)*

- Developed a tool using Perl, Python and internal APIs to identify and remove over  $\sim 40\%$  of unused XML error code entries across several files in the codebase to improve code quality and compile time, steering an automated solution, and eliminating manual oversight needed for prior tools.
- Authored extensive documentation and a help page for the command-line utility, providing clear guidance for future users.
- Gained experience with software development tools and techniques, such as version control and continuous integration, as well agile methodologies

- **TechR - Technology for Human Rights, Oslo, Norway**

*(January, 2023 - March, 2023)*

- Part of a European Union programme to develop mobile and web-based platforms incorporating ludic design to bridge the digital divide between and among the youth of diverse backgrounds and cultures.

- **Scalable Data Science Lab, IIIT Bangalore**

*(May, 2022 - Decemeber, 2023)*

Mentor: Prof. Vinu E Venugopal

- Working on Reason-AIR, a project in collaboration with the University of Luxembourg and IIIT Delhi, intending to develop a distributed high-performance reasoning system for Description Logic (DL) ontologies. Specifically, developing a baseline system integrating Apache Spark and the Owlready2 API.
- Learnt and gained experience in the areas of ontology, reasoning, stream processing as well as big data applications of these using Apache Spark.

- **Center for Sustainable Mobility, IIIT Delhi**

*(August, 2021 - December, 2021)*

Mentor: Prof. Anuj Grover

- Conducted research focused on the development of cost-effective GPS modules tailored for e-rickshaws and auto-rickshaws, aiming to enhance last-mile connectivity within the urban landscape of Delhi, India.
- Worked on the deployment of a real-time operating system to ensure the seamless operation of the GPS modules.

- **Tata Steel, Jamshedpur**

*(May - July, 2021)*

Mentor: Rahul Kumar

- Constructed a machine learning framework utilizing a multivariate predictive model to ascertain the probability of employee lateness. This model integrates disparate datasets, including domicile coordinates and transportation modalities, to provide a robust analytical tool for workforce management.

## Scholastic Achievements

- Part of the **Dean's Merit List** at IIT Bangalore for exceptional academic performance, for four consecutive years.
- Recipient of the Mitacs Globalink Research Award, an honor bestowed for pursuing exceptional research contributions in Canada.
- Selected for the distinguished DAAD WISE Scholarship, reflecting my prowess to carry out potential research in Germany.
- Earned the ThinkSwiss Research Scholarship: Asia-Pacific to facilitate my promising scholarly pursuits in Switzerland.
- Honored with the Charpak Lab Scholarship, affirming my excellence and enabling research within France's academic landscape.
- Recipient of the Tata Steel Millennium Scholarship for demonstrating distinctive academic and research acumen.
- Secured a %ile of 99.43 in JEE Main (2019), among 1.2 million candidates.
- Among the top 1%ile of the ISC examination (class 12), conducted by CISCE.

## Technical Skills

- **Programming Languages:** C, C++, Python, Java, Perl,  $\LaTeX$ , SQL
- **Web Technologies:** Microservices, RESTful APIs, Semantic Web (OWL, Protégé, Wikibase, SPARQL)
- **Big Data Technologies:** Hadoop, MapReduce, Apache Spark
- **Tools and Frameworks:** UNIX, Git, Jenkins, Docker, Kubernetes, Ansible, JUnit

## Extra Curricular Activities

- Part of the organizing team at TEDx, IIT Bangalore edition.
- Part of the core committee of the Google Developer Student Club at IIT Bangalore.
- National semi-finalist at the Wipro Earthian Sustainability Quiz 2021, India's first quiz on sustainable development.
- Two-time finalist at the Tata Crucible Campus Quiz (2021, 2022), India's largest business quiz.
- National semi-finalist on News Wiz 2016, India's first and biggest news quiz, broadcast on India Today TV.
- National finalist on Travel Quest 2015, India's first nationwide travel quiz, an initiative by Thomas Cook.
- Regional finalist on TCSITWiz 2014, India's biggest IT quiz, conducted by Tata Consultancy Services.
- Three-time winner of the JRD Tata Memorial Quiz (2014, 2015, 2016), organised in memory of the industrial pioneer by Tata Steel.