

UTKARSH YASHVARDHAN

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Education

Birla Institute of Technology and Science, Pilani

Pilani, Rajasthan

M.Sc. in Mathematics & B.E. in Computer Science (Dual Degree) | CGPA: 8.33/10

Aug. 2019 – Present

Experience

Teaching Assistant

Jan. 2024 – Present

Data Structures & Algorithms (CS F211)

BITS Pilani

Helping students grab essential Data Structures & Algorithms concepts by guiding them with the **course lab sheets**. The course is taught with **C language** as standard.

Teaching Assistant

Aug. 2023 – Dec. 2023

Computer Programming (CS F111)

BITS Pilani

Helped students grab essential programming concepts by guiding them with the **course lab sheets**. The course is taught with **C language** as standard.

Research Assistant

May. 2023 – Jul. 2023

BITS IOT Lab

BITS Pilani

- Worked on applications of **Generative Artificial Intelligence (GAI)** in the security domain.
- Wrote a **research paper** on **Generative AI for Cyber Security** and submitted it to **IEEE Access** (currently it is under review).

Backend Developer Intern

Jun. 2021 – Jul. 2021

L&T Infotech

Mumbai, Maharashtra

- **L&T Infotech** — a **global technology consulting and digital solutions company** with operations in **33 countries**.
- I worked with a team of **dedicated IIOT Engineers** on the development of an **asset management system**.
- **Developed 3 microservices** for the asset management system.
- **Key Learnings**
 - * Learned to **implement** and work with **microservices architecture**.
 - * Learned to work with the latest technologies like **Node.js, Express.js, PostgreSQL, Sequelize.js, Swagger, TimescaleDb** etc.

Thesis

Rendering Bokeh Effect using Federated Learning (FL) | Federated Learning, Pytorch, Flower

Jun. 2023 – Present

- **Project Description**

The project involves **creation of FL-based models** using pre-existing bokeh rendering Deep Learning (DL) models and then **benchmarking their performance** against the original models.
- **Tasks done**
 - * Performed **rigorous literature review**.
 - * **Implemented 2** pre-existing bokeh rendering DL models with **FL setup using Flower framework**.
 - * Benchmarked their performance against the original models.

Projects

Compiler Implementation | Compiler Construction, C Programming

Jan. 2023 – Apr. 2023

- **Project Description**
 - * The project involves designing and developing a Compiler for a custom language using C.
 - * Design and implementation of the **lexical analyzer** and **parser** for the given custom language are done.
 - * The project also implements **lexical and parsing error detection** and **parse tree creation** for the given custom language.
- **Role in the 5-member team**
 - * Implemented efficient data structures like **Hash Table, Stack, N-ary Tree**, and **Set**, which were crucial for compiler implementation.
 - * Contributed to **designing DFA for the lexical analyzer** phase of the compiler design. Also contributed to lexical analyzer development.
 - * Contributed to **designing context-free grammar for the parser** phase of the compiler design and developed crucial parser functions.

- *End Result*
 - * Learned about the **internal functioning of the Compiler**.
 - * Got experience in implementing a **complex system like a Compiler** using just basic **C constructs**.
 - * Learned how to **cooperate together** as a team while **working on a big project**.

Air Traffic Control System | Database Design, SQL Programming

Apr. 2022 – May. 2022

- *Project Description*
The project **implements a database** that helps **control air traffic** by **implementing constraints on flight arrival and departure**.
- *Role in the 2-member team*
Did all the **database programming**, including the **development of tables, views, procedures, triggers** etc.
- *End Result*
 - * Understood how an air traffic control system works.
 - * Learned how to **implement some functionalities of an air traffic control system** and **manage the project as a team**.

Cab Booking System | Object Oriented Programming, Java

Oct. 2021 – Nov. 2021

- *Project Description*
 - * The project implements a basic **system to manage cab booking** from **both customer's and driver's ends**.
 - * It also shows the **complete journey of the customer from the source to the destination** after the cab booking is finalized.
 - * Once the trip is completed, the customer rates the driver based on his experience.
- *Role in the 2-member team*
 - * **Developed the grid**, which shows the **customer's journey** from the **source to the destination**.
 - * Worked on **creating a multithreaded environment** to get **interfaces for the customer and the driver**, which can **interact with each other**.
- *End Result*
 - * Learned about how a cab booking system works and is implemented.
 - * Got **experience** in developing an application using **concepts of multithreading**.
 - * Learned how to **work on a project together as a team** and **manage the project as a team leader**.

Encoding US Constitution as Knowledge Base | Prolog Programming

Sept. 2021 – Oct. 2021

- *Project Description*
Implemented all the **articles of the US Constitution** using **SWI Prolog** and **used some predefined facts to check the validity of specific test queries**.
- *Role in the 3-member team*
Implemented one-third of the articles and sections of the US Constitution using **SWI-Prolog**.
- *End Result*
Learned about the US Constitution and **implemented real-world problems using SWI Prolog**. Learned how to work on a project together as a **team**.

Technical Skills

Languages: C/C++, Java, Python, Matlab, SQL

Technologies/Frameworks: Pytorch, Tensorflow, Numpy, Scikit-learn, Keras, Pandas, Matplotlib, Node.js, Express.js, Sequelize.js, PostgreSQL, TimescaleDb, Swagger

Developer Tools: VS Code, Jupyter Notebook, Eclipse, Sublime Text, Pycharm, Git, SWI-Prolog

Scholarship

Merit Scholarship (II Semester 2019-2020)

Feb 2021

BITS Pilani

Pilani, Rajasthan

Got Merit Scholarship of about Rs 70,000 which is given to **top 2% performers** in the batch.

Leadership

Competitive Coding SIG Co-lead

Aug. 2021 – Apr 2022

Microsoft Learn Student Ambassadors

BITS Pilani Chapter

Helped the newly recruited club members **to learn the skill of Competitive Coding**.

Memberships

Mathematics Association

Sept. 2019 – Apr. 2023

BITS Pilani

Bloackchain Society

Aug. 2021 – Present

BITS Pilani