

Ralah Aaqil

B.E. Artificial Intelligence and Machine Learning

CMR Institute of Technology, Bangalore

Gender: Male

DOB: 22-02-2003

Contact: ralahaaqil@gmail.com

Course	University/Board	Institute	Year	CGPA/%
Undergraduate	Visvesvaraya Technological University	CMR Institute of Technology	2025	8.23
Intermediate	ISC	The Frank Anthony Public School	2021	86.5
High School	ICSE	The Frank Anthony Public School	2019	93.4

RESEARCH EXPERIENCE

Recommender System using Reinforcement Learning

(Jun'23 - Present)

Guide: Dr. Shyam P Joy, CMR Institute of Technology

- Studied the foundations and applications of **Reinforcement Learning** including the implementation of various libraries such as **gymnasium** and **stable baselines 3**.
- Developing a model that can **recommend a course** for a person with a **disability** based on their disability and academic profile to **improve their job opportunities**.

KEY TECHNICAL PROJECTS

Course Recommendation Model for the Disabled using Reinforcement Learning

(Jun'23 - Present)

- Working on structuring an environment and developing a model that **recommends courses for people with disabilities to enhance their job opportunities**.
- Pre-processed a dataset consisting of information on over **10,000** candidates, extracting relevant information for the model.
- Structured an environment with a suitable reward function for the problem based on the standard environment framework established by **OpenAI gym**.
- Studied the working of various RL algorithms including their applications using **Stable Baselines 3**.
- Using **Tensorboard** to analyse the performance metrics and making suitable changes to the hyper-parameters to obtain the desired results.

Image Classification Model to Detect Diseases on Leaves

(Nov'22 - Jan'23)

- Worked on developing a model that **classifies an image of a leaf** based on its type and health.
- Studied the methods of implementation of **data augmentation, oversampling, undersampling and SMOTE**.
- Studied the processing of image data and conversion of image data to the required data structure and dimensions using **Tensorflow**.
- Used **Tensorflow and Keras** to implement a neural network.
- Used **Matplotlib** to plot and analyse the performance metrics and make necessary changes to the hyper-parameters and display the results.
- Used the **scikit-learn** library to gain more information on the performance metrics to make any further changes to improve the model.

Flight Database Management System

(Nov'23 - Jan'24)

- Worked on developing a **full stack web application** that enables users to book flight tickets.
- Used **SQL** and the concepts of relational databases to develop an efficiently structured database to handle large amounts of flight and user data.
- Ensured that the **security of user data** was maintained by implementing secure logins for each user and admin.
- Used **HTML, CSS and JavaScript** to provide a visibly appealing and interactive interface for the users and the admins.

TECHNICAL SKILLS & INTERESTS

Programming Languages: Python, SQL, Javascript, HTML, CSS

Tools & Libraries: Scikit-Learn, Numpy, Matplotlib, Tensorflow, Pandas, Stable Baselines, OpenAI Gym, \LaTeX , GIT

Interests: Data Science and Analytics, Reinforcement Learning, Machine Learning

KEY COURSES UNDERTAKEN

Computer Science: Data Science, Machine Learning, Natural Language Processing, Artificial Intelligence, Database Management Systems, Cloud Computing*, Digital Image Processing*, Data Structures and Algorithms, Operating Systems, Computer Networks, Computer Organization and Architecture, Software Engineering, Project Management, Automata Theory, Compiler Design, Full Stack Web Development, Microsoft Office Suite

Mathematics: Differential Calculus I and II, Linear Algebra, Integral and Vector Calculus, Numerical Methods I and II, Transform Calculus, Fourier Series, Statistics and Probability

**To be completed by December 2024*

POSITIONS OF RESPONSIBILITY

- **Member of the Peer Learning Team** (Sep'22 - Present)
 - Responsible for aiding a class of **65 students** in navigating the academic curriculum.
 - Providing simplified material for below average students to enable them to understand topics in an easier manner.
- **Project Lead for Semester Project (3rd Semester)** (Nov'22 - Jan'23)
 - Managed a team of **3 individuals** to develop and implement an image classifier.
 - Selected from among **22** projects in the department, to be displayed in the annual project exhibition.
- **Project Lead for Semester Project (5th Semester)** (Nov'23 - Jan'24)
 - Managed a team of **3 individuals** to structure and implement a flight database management system.

EXTRACURRICULARS

- Private guitar tutor, teaching a handful of students basic and intermediate acoustic and electric guitar.
- Completed the **Grade 6 Rock & Pop** examination held by Trinity College London with **distinction**.
- **Finalist** at the **National Level** Battle of the Bands, **Yamaha Teens Rock, 2019**.