Improve learning experience through data science in adaptive learning environment.

1. Brief Introduction -
   1. introduction to adaptive learning and how data science can improve it further
2. literature review
3. Research problem and objectives
4. Research methodology
   1. Constructive research methodology , data cleaning / process ,efficiency
5. Data set/collection
   1. Parameters , sufficient amount of data , sampling techniques ,
6. Timeline – grant chart lit/cleaning data /
7. Reference – Harved / author year

# Introduction

## Introduction E-learning

Education is one of the fundamental pillar in an society that drive the intellectual growth and uplift the social standards. According to (<https://www.un.org/en/about-us/universal-declaration-of-human-rights>) United Nations , Universal declaration of Human rights

### Introduction to adoptive learning

## Internet based education platforms

### Introduction to knewton

# Literature review

## Adoptive learning

## Role of data science in adoptive learning

## Knowledge graph

## Proficiency modeling and Learning rate

## Instruction materials

* **The observed history of a student’s interactions**, including which questions the student answered correctly and incorrectly, the instructional material they studied, and when they performed these activities.
* **Content properties**, such as the difficulty of a question the student is answering.
* **The structure of the Knewton**[**Knowledge Graph**](https://www.knewton.com/blog/mastery/what-are-knewtons-knowledge-graphs/), in particular the prerequisite relationships between learning objectives.

The foundation for our Proficiency Model is a well-known educational testing theory known as [Item Response Theory](https://en.wikipedia.org/wiki/Item_response_theory) (IRT).

* graph neural networks for inference on a knowledge graph
* automatic inference or refinement of the knowledge graph
* learning underlying student learning characteristics
* inferring learning rates
* learning effectiveness of different instructional materials.