Open Innovation In Education

Team

# NEURAL KNIGHTS

## Members


Anuj Malviya
Mustafa Azad
Nikita Kulshreshtha
Srushti Parulkar
Neeraj Sharma


# OPEN INNOVATION IN EDUCATION

An AI/ML-driven educational platform that provides personalized learning experiences based on individual student needs and preferences, offering various content formats, real-time assessments, and interactive communication channels.

The platform offers a wide range of content formats, including interactive videos, interactive simulations, gamified exercises, and engaging multimedia presentations, to cater to different learning styles and preferences.

# IMPACT OF ONEAPI & HOW DID IT HELPED US

By leveraging optimized libraries for machine learning, data analytics, and NLP, Intel's OneAPI delivered better-quality content, personalize learning experiences, and provide more efficient and engaging educational services to students worldwide.

Intel's oneDNN : Enabled us to optimize and accelerate deep learning inference on Intel architectures. By leveraging its capabilities, we improved the performance, reduce memory usage, and achieved better efficiency in deep learning applications

Intel's oneDAL :  Accelerates data analytics and machine learning workloads on Intel architectures. It provided the optimized implementations of various algorithms, integrated with popular libraries. By utilizing oneDAL, we achieved improved performance, scalability, and efficiency.

NEURAL KNIGHTS

# Core components of oneAPI used

The core components of oneAPI, including oneDAL for machine learning and data analysis and oneDNN for accelerating deep learning and NLP tasks, leveraged to enhance the recommendation system, chatbot, text summarization, and quiz generation functionalities in our education platform.

oneDNN

## Recommenedation System

Data preprocessing tasks such as feature extraction, scaling, and normalization are performed.

These optimized algorithms enable faster training improving the efficiency of the recommendation system.

oneDAL

## Chatbot

The chatbot can process and analyze user queries faster, resulting in quicker responses.

For NLP tasks it is used to accelerate operations like tokenization, word embedding, and sequence processing.

oneDAL

## Text Summarizer

OneDAL provides optimized implementations of preprocessing algorithms that can efficiently handle tasks like tokenization, removing stop words, stemming and feature extraction, such as TF-IDF calculations.

oneDAL & oneDNN

## Quiz Generation

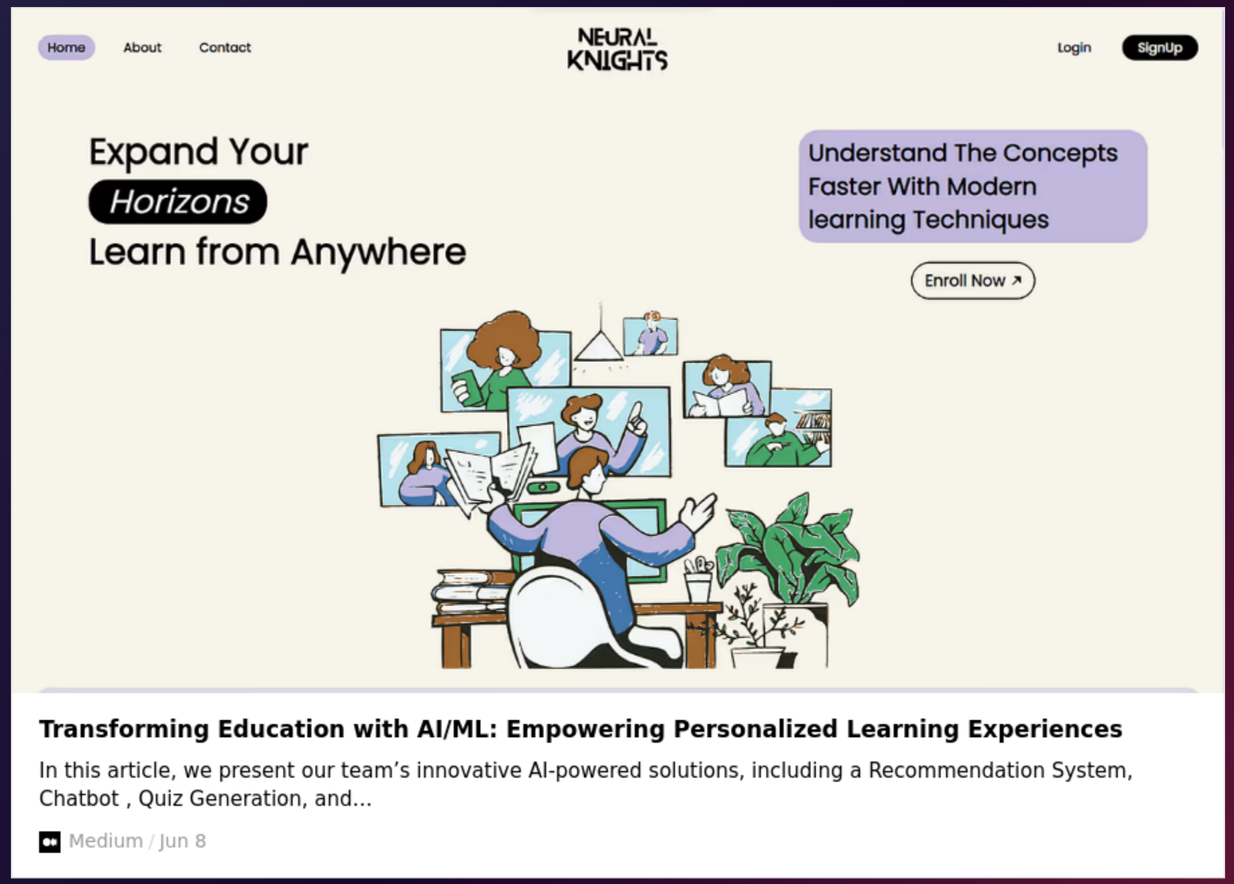
Intel's oneDAL provides optimized implementations of text processing algorithms & analyzing the input text to extract important information for generating quiz questions.

# VIDEO

https://drive.google.com/file/d/1EPdy_B135HWj6V8iVehaA-pgCKbfTeas/view?usp=drivesdk

# Links

( Links are embedded in the text )




1 Master Repo

2 Web App

- **Intel Scikit learn**

Intel Extension for Scikit-learn, is an optimized version of scikit-learn that leverages Intel's oneDAL, provides accelerated implementations of various machine learning algorithms, including those commonly used for building recommendation systems.

Modin is designed to provide a faster and more efficient alternative to Pandas for handling large-scale datasets. Intel's optimization for Modin enhances its compatibility with Pandas, ensuring that existing Pandas code can be seamlessly integrated and executed efficiently with Modin, delivering enhanced performance benefits.

- **Modin**

# Results Summary

unique aspects of oneAPI

The unique aspect of Intel Optimization for TensorFlow lies in its ability to accelerate Keras models, particularly useful when training the underlying natural language processing (NLP) models of a chatbot thus improveing the efficiency of building models . It includes optimized implementations of optimization algorithms, such as Stochastic Gradient Descent (SGD).

- **Intel Tensorflow**

**By utilizing these optimized components, the project is benefited from improved performance, scalability, and efficiency, ultimately providing a more robust and engaging learning experience for students.**

# Thank You

regards

## NEURAL KNIGHTS