*Q1) Significant ML Project: "Describe a significant ML project you have worked on, including the tools used. Provide a diagram of the architecture if possible. We are particularly interested in projects where you transitioned models from research to production and handled their ongoing maintenance." (100 word limit)*

*An AI-powered Robot Medic for chronic wound care was developed, integrating machine learning models with a robotic arm. A Random Forest Classifier (99% accuracy) for detection and a U-Net CNN (0.8377 Dice score) for segmentation were employed, both trained on custom datasets. These were integrated with a Niryo Ned 2 arm using Python (sklearn, PyTorch, pyniryo).*

*A Flask-based backend was deployed on AWS, monitored via CloudWatch, with updates managed through CI/CD. Wound images are captured, analyzed via API, and reports generated for doctors. Dressing operations can be performed upon approval*

*Research and production were bridged, with a feedback loop for continuous improvement.*

Q2

A diagram of a machine

Description automatically generated

*Q3) Graph Representation Learning Adjustment: "We have developed a Graph Representation Learning model that predicts links between nodes in a static knowledge graph. How would you modify this model to incorporate the temporal component of the data? What specific engineering challenges might arise?" (200 word limit)*

In evolving our static Graph Representation Learning model to a dynamic, time-aware system, two advanced techniques will be employed: Recurrent Graph Neural Networks (RGNNs) and Temporal Graph Attention Networks (TGATs). RGNNs will enable the model to capture temporal node state progressions, providing the graph with memory to learn from evolving data over time, while TGATs will help prioritize significant historical interactions. This shift presents challenges, such as managing temporal drift to maintain relevance, balancing scalability with the need to store historical states, and addressing irregular real-world time intervals.

To overcome these challenges, strategies like temporal sampling will reduce computational overhead by selecting only relevant historical data. Incremental learning will efficiently update the model as new data arrives, and temporal embeddings will capture time patterns explicitly. Additionally, thinking outside the box by incorporating Long Short-Term Memory (LSTM) architectures with Graph Neural Networks could provide a novel approach to handling temporal data. Though LSTM isn't traditionally combined with GNNs, exploring this integration could enhance the system's ability to manage temporal sequences. Balancing model expressiveness with computational efficiency is key, but these techniques pave the way for a more dynamic and insightful graph representation learning system.

*Q4) Motivation for EdTech*: "Why are you interested in working for an edtech startup? What draws you to education?" (100 word limit).

Fresh out of university with AI expertise, I’m drawn to edtech startups. Growing up in Bangalore, I’ve seen how technology can solve real-world problems, and as a recent graduate, I understand the challenges students face today. What excites me about edtech is the focus on making a difference, not just profits, which aligns with my values. However, many edtech startups struggled after booming during COVID because they couldn’t adapt as schools reopened. I believe startups like EEDI need fresh perspectives, and I’m eager to bring mine to help them stay current and meet children’s evolving needs.