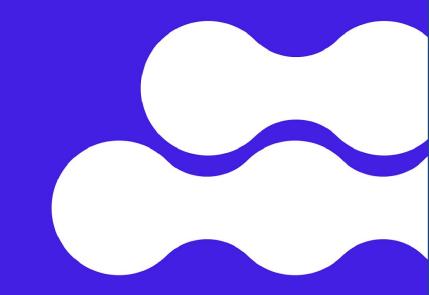


# Intel® GenAl Hackathon

Team Name: TEAM VELOCE

Problem Statement: AI FOR SOCIAL IMPACT



intel.



#### AI FOR SOCIAL IMPACT

Challenge participants to use Stable Diffusion and Transformers to develop AI models that can address social issues. This could involve predicting areas at risk of natural disasters, generating educational content for underprivileged students, etc. The focus here is on open innovation for social good.





# intel.

### UNIQUE IDEA

The Indo-LLaMA tool interprets the text while keeping the essence of what is to be conveyed.

To achieve this the tool scans through  $\{paragraphs \rightarrow lines\}$  rather than  $\{word \rightarrow word\}$  interpretation.

This keeps the meaning intact. The tool also provides a summary of the content provides to get a jist of what is to be conveyed.

ARTIFICIAL RESPONSIBLE INTELLIGENCE?

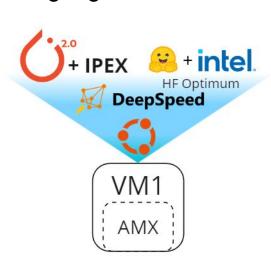
LETS TALK LLAMA



# intel

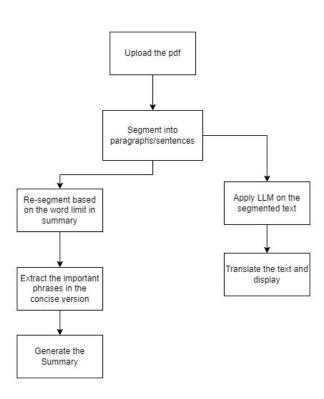
#### FEATURES OFFERED

- Translating from and to multiple national/ international languages.
- Inclusion of new languages due to presence of independent tokenizer code
- Provision of a concise summary to understand the gist of the content
- Due to uses of INTEL's Xeon VM, computation time is reduced.
- Large volume of data can be stored on INTEL cloud.



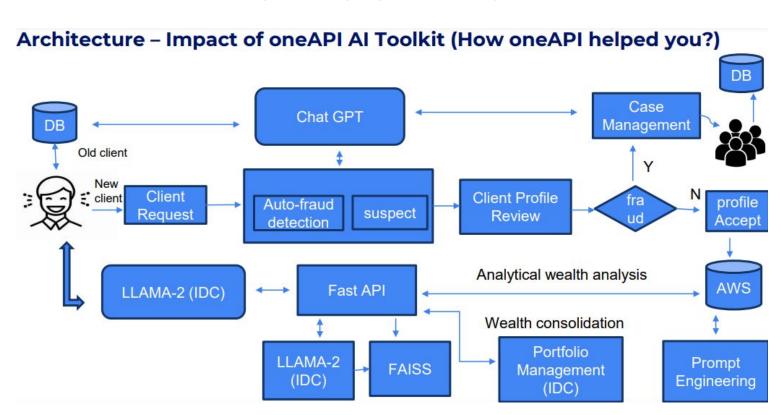


# PROCESS FLOW





#### ARCHITECTURE DIAGRAM





#### **TECHNOLOGIES USED**

intel-extension-for-pytorch : ipex

Tensorflow

Transformers

deep\_translator

Both pytorch and ipex are used due to dependency issues.

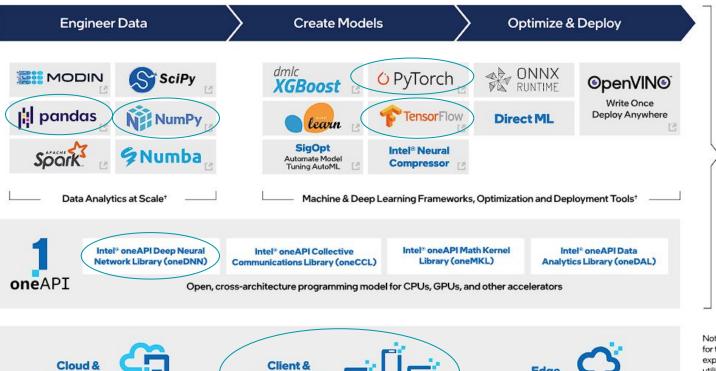




Transformers is a library exclusively for interacting with models on hugging face

At this stage we use these libraries primarily but on development of our own LLM's with large amount of data, the other tools will come to be useful

#### **SCALABILITY**



Workstation

**Enterprise** 



Intel® Developer Intel® De Cloud Cat

Intel® Developer Catalog

Try Latest Intel Tools and Hardware, and access optimized AI Models

#### cnvrg.io

Full stack ML Operating System



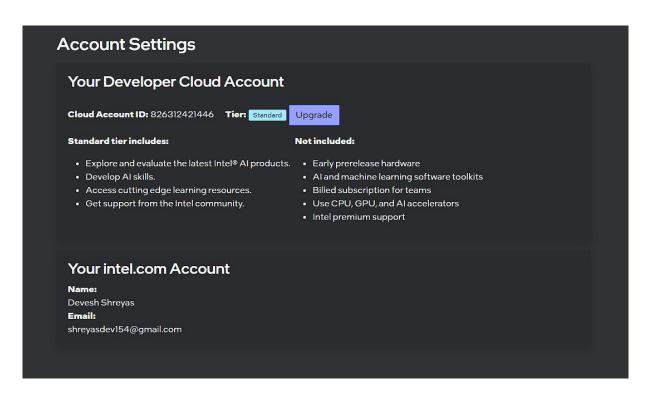
Intel optimizations and fine-tuning recipes, optimized inference models, and model serving

Note: components at each layer of the stack are optimized for targeted components at other layers based on expected Al usage models, and not every component is utilized by the solutions in the rightmost column

<sup>†</sup> This list includes popular open source frameworks that are optimized for Intel hardware



# Intel® Developer Cloud Account (Screenshot)





## Use case of Intel® Developer Cloud (IDC)

#### Evaluating and optimizing performance:

 IDC provides access to a variety of powerful Intel Xeon processors and GPUs, allowing you to benchmark INDO LLAMA on different hardware configurations and optimize its performance for specific use cases. This can lead to faster processing times and improved efficiency.

#### Scaling development and testing:

 IDC's cloud-based nature allows you to easily scale your development and testing environment up or down as needed. This is crucial for handling large datasets or complex text analysis tasks without worrying about hardware limitations.

#### Experimenting with advanced AI frameworks:

 IDC offers pre-installed deep learning frameworks like TensorFlow and PyTorch, which INDO LLAMA can leverage for advanced text analysis tasks like sentiment analysis or topic modeling.
 You can experiment with different frameworks and configurations to find the best fit for your specific needs.

#### EFFICIENCY AND EFFECTIVENESS BENCHMARK

```
model = MBartForConditionalGeneration.from pretrained("facebook/mbart-large-50-one-to-many-mmt")
         pytorch model.bin: 100%
                                                                        2.44G/2.44G [00:38<00:00, 32.6MB/s]
        /usr/local/lib/python3.10/dist-packages/torch/ utils.py:831: UserWarning: TypedStorage is deprecate
           return self.fget. get (instance, owner)()
         generation config.json: 100%
                                                                            261/261 [00:00<00:00, 14.8kB/s]
        tokenizer = MBart50TokenizerFast.from pretrained("facebook/mbart-large-50-one-to-many-mmt", src
        tokenizer config.json: 100%
                                                                            528/528 [00:00<00:00, 28.0kB/s]
        sentencepiece.bpe.model: 100%
                                                                                5.07M/5.07M [00:00<00:00, 19.8MB/s]
        special tokens map.json: 100%
                                                                               717/717 [00:00<00:00, 42.0kB/s]
1m [10]
         # translate from English to Hindi
         generated tokens = model.generate(
             **model inputs,
             forced bos token id=tokenizer.lang code to id["hi IN"]
```

$$T_{total} = 205s$$

Run on Google Colab Runtime

```
In [14]: %%timeit
           from transformers import MBartForConditionalGeneration, MBart50TokenizerFast
           import torch
           from intel extension for pytorch.transformers.optimize import optimize
           1.01 \mus \pm 118 ns per loop (mean \pm std. dev. of 7 runs, 1,000,000 loops each)
 In [15]: %%timeit
          model = MBartForConditionalGeneration.from_pretrained("facebook/mbart-large-50-one-to-many-mmt")
          tokenizer = MBart50TokenizerFast.from pretrained("facebook/mbart-large-50-one-to-many-mmt", src lang="en XX")
           2.18 s ± 638 ms per loop (mean ± std. dev. of 7 runs, 1 loop each)
  In [16]: %%timeit
          article en = "Morality or moral behaviour is not necessarily the result of philosophical reflections. Thesephilosophical reflecti
          model_inputs = tokenizer(article_en, return_tensors="pt")
           266 µs ± 1.93 µs per loop (mean ± std. dev. of 7 runs, 1,000 loops each)
In [17]: %%timeit
         # translate from English to Hindi
         generated_tokens = model.generate(
             **model inputs.
             forced_bos_token_id=tokenizer.lang_code_to_id["hi_IN"]
         12.9 s ± 737 ms per loop (mean ± std. dev. of 7 runs, 1 loop each)
In [18]: %%timeit
         translation = tokenizer.batch_decode(generated_tokens, skip_special_tokens=True)
         71.3 µs ± 13.2 µs per loop (mean ± std. dev. of 7 runs, 10,000 loops each)
In [20]: %%timeit
          translation
         8.18 ns ± 2.14 ns per loop (mean ± std. dev. of 7 runs, 100,000,000 loops each)
```

Run on Intel Xeon VM and optimised libraries.

$$T_{total} = 40s$$

$$\eta = 80.4\%$$

# Languages offered

#### **National**

Gujarati (gu\_IN), Hindi (hi\_IN) Bengali (bn\_IN), Malayalam (ml\_IN), Marathi (mr\_IN), Tamil (ta\_IN), Telugu (te\_IN),

#### International

Arabic (ar AR), Czech (cs CZ), German (de DE), English (en XX), Spanish (es XX), Estonian (et EE), Finnish (fi FI), French (fr XX), Italian (it IT), Japanese (ja XX), Kazakh (kk KZ), Korean (ko KR), Lithuanian (lt LT), Latvian (lv LV), Burmese (my MM), Nepali (ne NP), Dutch (nl XX), Romanian (ro RO), Russian (ru RU), Sinhala (si LK), Turkish (tr TR), Vietnamese (vi VN), Chinese (zh CN), Afrikaans (af ZA), Azerbaijani (az AZ), Persian (fa IR), Hebrew (he IL), Croatian (hr HR), Indonesian (id ID), Georgian (ka GE), Khmer (km KH), Macedonian (mk MK), Mongolian (mn MN), Polish (pl PL), Pashto (ps AF), Portuguese (pt XX), Swedish (sv SE), Swahili (sw KE), Thai (th TH), Tagalog (tl XX), Ukrainian (uk UA), Urdu (ur PK), Xhosa (xh ZA), Galician (gl ES), Slovene (sl SI)

# Result

#### translated

Ethics and Values
Dr. M Rashmi
Department of Social Sciences
VIT University, Vellore

Lecture - 9 Charity and Serving Society

#### Hello everyone!

In the previous lecture we spoke about helping the needy and in body's lecture we will talk about how to help he needy. Actually, from my first lecture ownsulf a lawe boen discussing about warrious ways of helping others, and one amongst them include reducing wastages. Well, our help towards others is also dependent on their requirement or what kind of help they need and also our ability, time, energy and dedecation to do the same. We can help they need and also our ability, time, energy and dedecation to do the same. We can help them the hours of the same to be a same to be about the same that th

So, let's understand the meaning of chavity. Most of the organized religions all over the world have advocated chavity as a great virtue which their followers must possess. You can take Christianiny, Islam, Hinduism, Buddhism or Zorosstrianism, let it be any religion, they unequivoxally advocate the virtue of charity. Clarity is a form of voluntary actions which can be practiced directly or indirectly to help or provide service to people individually or collectively out of their feeling of compansion to assist others, especially those who are the victims of poverty, ill-beathh, illeness, illiteracy, suppression, oppression, abuse, exploitation,

Voluntary action is mainly characterized by the following features which include:

 An innate urge to help others and promote their well-being in all possible ways-not necessarily monetarily.

Absence of any kind of expectation for any material gains in lieu of the help given
 Sense of social concern and orientation of helping others in need.

4) Faith in the highest virtue of service to humanity.

5) Belief in the primacy of one's duty over one's rights

However, there also exists another side of human nature. Human beings by their nature can be self-seeking also. In the present age of individualism, materialism and hedonism, this self-serving, tendency has also increased. This has adversely affected the voluntarism and voluntary action.

People today want to know at the very outset as to whether they will be benefitted or in what way they will be benefitted if they take part in any programme or activity. But despite all of this there are people who provide voluntary help. You might have heard of and even participated in National Service Schemes and National Cader Copp where educated youth are trained and rewarded for their contribution towards society. They are trained to help, support and work thereby inculcating the very essence of charity into their personality. I myself was an active member of NSS during my college days, where we did findraining for constructing a house for our fired and we also helped panehavats in conducting a society-cocomic survey.

Ok friends, now it's time for a reflection spot.

What is GREENPEACE? Have you heard of it? What do you think it does? Is it some form of charitable onemization?

Well, with the name itself you would have understood that GREENPEACE is an International NGO or non-governmental organization with offices in over 55 countries and involved in making this planet greener, peaceful and survivable. Hence, it is an environmental charitable organization which focuses on ways to promote preservation, appreciation, and sustainable development for the environment. The two primary subgroups for this type of charity are: Environmental Conservation & Protection & Parks and Nature Centers. Similarly, there are other examples of charities like animal charities which include Wildlife Conservation Organizations, Pet and Animal Welfare Organizations, Hunting & Fishing Conservation Groups, Zoos and Aquariums. We have organizations like WWF (Worldwide fund for Nature), and animal Equality as examples for animal charities. NGOs (Non-Governmental organizations) are typically charities that are headquartered in one country but work in other countries. In some cases they overlap with other types of charities. They also fall into categories like International Development NGOs, Disaster Relief & Humanitarian NGOs, Peace & Human Rights NGOs, Conservation NGOs, Child Sponsorship Organizations. Prajwala is a pioneering anti-trafficking organization working on the issue of sex trafficking and sex crime. Similarly, we have other NGOs like HelpAge India Foundation for caring disadvantaged elderly senior citizens and CRY, which works amongst underprivileged children. Apart from them, there are also art and culture charities which help preserve artistic and cultural heritage as well as celebrate the arts and our history. SPICMACAY (Society for the Promotion of Indian Classical Music and Culture Amongst Youth) promotes the Indian cultural heritage by promoting Indian classical music, classical dance folk music and dance, yoga, crafts etc. There are also health and education charities. Health charities support and treat the sick and disabled, working on cures for diseases, and promoting public awareness of specific health risks. As example we have, Mind, an organization which is actively involved in addressing the mental health issues of people. Education charities, serve students from every age group, pre-school to graduate school and beyond. Some serve as the educational institutions while focus on making education more accessible and effective. For example, we have scholarship foundations like FAEA (Foundation for Academic Excellence and Access), which emphasizes equality of education and opportunity of disadvantaged students.

Before we end this lecture, try to answer this question, the name Rainbow Warrior is associated with which NGO?

summary

पूर्ण आपने करें पूरा को में मूल हैं कर दोनी की आपने हुए लूमिय लागि में अपना होना आही को पूरानी में एक्टी में एक्टी में ती करी साम पहले का मुंदि की स्वार के साथ की स्वीर की प्रदान के साथ की कर की स्वीर की मान है के साथ की स्वार के साथ के साथ कर की है, एनी में में अपने की साथ की साथ की साथ की साथ की साथ कर की साथ की

[पटन आपने कर है। क्यां में मूल हैं जा मी की अपना है रह पहिला स्वाति के समया है के व्याति को स्वाति के स्व

ं पूर्ण के प्राप्त के प्राप्त के प्राप्त के कि प्रति के अपने इस एक्षेत्र प्राप्ति के अपना होन वाहती के प्रवृत्ति के प्रति के प्रति के स्वार्ण के प्रति के प

पहलारों के पार्टी मोता मोता मोता माता मात्र प्रतिनिक्षित्र करता है. होता मोता में मोदर और भरवादी अपविधा के साथ पहलारों के पूर्ण में मात्र मुख्य में होता मोता में मात्र में स्वार में मात्र में मात्र में हैं है मात्र प्रति के मोता के क्षेत्र में मात्र मात्र में मात्र

्या आप के को देश को में मुंबा है जिया में तो आप के दि का होता हात्वाम के अपना होन पाएंची को एकान कि स्वार्ण में पाएंची के प्रार्थ के से स्वार्ण का प्रार्थ के साम प्रमुख्य का है, होतानी के निर्माण के स्वार्ण के साम प्रमुख्य के हैं, होतानी के निर्माण के में अपने की स्वार्ण के साम प्रमुख्य के हिम्म प्रमुख्य के हिम्म प्रमुख्य के हिम्म के स्वार्ण के साम प्रमुख्य के हिम्म के स्वार्ण करिया के स्वार्ण के साम प्रमुख्य के स्वार्ण करिया के स्वार्ण करिया के साम प्रमुख्य के स्वार्ण करिया के स्वार्ण करिया के साम प्रमुख्य करिया के साम प्रमुख्य के स्वार्ण करिया के साम प्रमुख्य के साम प्रमुख्य के स्वार्ण करिया के साम प्रमुख्य के स्वर्ण करिया के स्वर्ण करिया के स्वर्ण करिया के स्वर्ण करिया करिया के स्वर्ण करिया के स्वर्ण करिया करिया के स्वर्ण करिया करिया

डॉ. एम. राशमी व्याख्यान देते हैं कि कैसे जरूरतमंदों की सहायता की जा सकती है. दान एक स्वैच्छिक कार्य का एक रूप है जिस सीघे या अप्रत्यक्ष रूप से लोगों की व्यक्तगित या सामूहिक रूप से सहायता करने या सेवा प्रदान करने के लिए किया जा सकता है। ग्रीनपीस एक अंतरराष्ट्रीय गैर-सरकारी संगठन या गैर-सरकारी संगठन है जिसके कार्यालय 55 से अर्धाक देशों में है। गैर-सरकारी संगठन सामान्यतः ऐसे दान हैं जो एक देश में स्थित हैं लेकिन दूसरे देशों में काम करते हैं। वे अंतरराष्ट्रीय विकास के गैर-सरकारी संगठनों, आपदा राहत और मानवीय गैर-सरकारी संगठनों, शांता और मानवाधिकार के गैर-सरकारी संगठनों, संत्कृषण के गैर-सरकारी संगठनों, बाल संरक्षक संगठनों जैसे श्रेणियों में आते हैं। ग्रीनपीस ने इसे एक नए जहाज से प्रतिथापित किया है. दसरा रेनबों वेयररा 22 वरषों

#### **Future Milestones**

- Inclusion of more Indian languages.
  - This can be done by the 'translator.py'
- Upgrading to a more responsive website
- Training the model to understand various parts of speech in different languages.



# Thank you so much!

