MENA Alliances

2019

Training Data

USE CASES

1. Introduction

Machine learning (ML) and artificial intelligence (AI) are powerful tools used by technology companies to provide their customers with leading-edge products and the best possible use experience.

Machine learning has applicability across a wide variety of technologies and products. The effectiveness of ML and the continuous optimization of algorithms demands large volume, high-quality, and human annotated data sets.

At MENA Alliances, we help the most innovative companies in the world with their most ambitious projects in AI and machine learning. We started this work with only 10 workers on our team. Today, our talent pool includes more than 2000 vetted professionals working on different kinds of projects. We enrolled them in various training courses in order to clarify and simplify their technique. Through demonstrating to clients how trustworthy and high quality our services are, we have continually been granted additional projects in both English and Arabic.

Our talent acquisition is not a random process. We have set strict standards for our employees. In addition to being fluent in English and Arabic as a prerequisite, our talents are vetted for both skills and character. They also receive growth and training opportunities that naturally result in high-quality work.

2. Use Cases

MENA Alliances have completed various projects related to artificial intelligence and machine learning. Below, details from some of those projects:

2.1. Transcription

Saving time and money by efficiently and accurately transcribing details and leveraging optical character recognition from a host of documents as well as image, video, and audio can be executed rapidly. Additionally, datasets can be leveraged to gain key insights and metrics for more actionable, real-time reporting, allowing you to focus your valuable time elsewhere.

We provide transcription services which are used to create documents that accurately capture every word spoken, and help you train your speech recognition system with high-quality transcribed speech data in Arabic, English, and Russian.

2.1.1. Voice Recognition - Transcription

This voice recognition/transcription project was completed for Google to better recognize accents in Arabic and Russian. Below is a screenshot of the various Arabic accents that were being utilized in the project:

ar	Arabic (MSA)
ar-ae	Arabic (U.A.E.)
ar-bh	Arabic (Bahrain)
ar-dz	Arabic (Algeria)
ar-eg	Arabic (Egypt)
ar-iq	Arabic (Iraq)
ar-jo	Arabic (Jordan)
ar-kw	Arabic (Kuwait)
ar-lb	Arabic (Lebanon)
ar-ly	Arabic (Libya)
ar-ma	Arabic (Morocco)
ar-om	Arabic (Oman)
ar-ps	Arabic (Palestine)
ar-qa	Arabic (Qatar)
ar-sa	Arabic (Saudi Arabia)
ar-sy	Arabic (Syria)
ar-tn	Arabic (Tunisia)
ar-ye	Arabic (Yemen)
ar-sd	Arabic (Sudan)

Figure 1: Various Arabic Accents

The client shared their goals with MENA Alliances, and then our project management team got to work on creating the process required to reach the desired output. MENA Alliances provided all equipment, tools, materials, and supplies needed while providing services in video captioning. MENA Alliances professionals were then trained by our team on how to transcribe, tag, format, and create JSON files for successful completion of the project.

The process involved using Amara to write time-stamped captions for YouTube videos and transcribe all speech exactly as spoken. The screenshot below shows a part of the training that was given by MENA Alliances onsite training and management team:

Figure 2: Speaker Labeling

Professionals have also trained on tagging other sounds heard on the videos such as laughing, noise, applause, and more. (See screenshot below)

Please use this tags for the labeling of videos.

[MUSIC]	
[LAUGHTER]	Laughter either by speaker or background audience
[NOISE]	Vocalizations that cannot be transcribed (such as screaming) and spontaneous noise events, (such as car horn, typing, cough, lip smack).
[APPLAUSE]	Applauses
[Speech]	Unintelligible speech
[FOREIGN LANGUAGE]	Foreign language (do not transcribe)
[OVERLAPPING]	To be used whenever multiple speakers are speaking in the foreground at the same time.

Figure 3: Other sounds Labeling

The transcriptions also include metadata annotations as well a additional information about the dialect (such as which country and if it is colloquial or formal), as shown in the screenshot below:


```
{
        "Metadata":
{
        "FEMALE_1":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:MSA"],
        "FEMALE_2":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:colloquial"],
        "FEMALE_3":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:MSA"],
        "FEMALE_4":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:colloquial"],
        "MALE_1":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:colloquial"],
        "MALE_2":["SPEAKER-NAME:Unknown", "DIALECT:ar-iq","MODE:colloquial"]
        }
```


Figure 4: Metadata Annotation

In the next phase of the process, the software team formatted the files from .srt to .jsn so the machine could understand the information.

STEP 2: FORMATTING

3. Use Subtitle Edit to transform the file from (.srt) into (.json-type 2)
4. Open the json file using Notepad++, and do encoding (UTF-8), then save it.
5. Transform the file into the exact requested format from customer by using PHP code.
6. Open the file using Notepad++, and add the metadata in one line for each speaker at the end of the json file

Figure 5: Formatting Process from .str to .jsn

Below are some examples of .json files for the Arabic videos:


```
} :"sentences"
]
,"0"
"[MUSIC] [FEMALE_1: شكرا لحضرة النقيب الأستاذ محمد اليعقوبي المحترم".
"29060"
,[
]
,"29060"
"[MUSIC] [FEMALE_1: وشكرا لحضوركم الكريم [NOISE] رسائل الإعلام اللبنانية والعربية المحترمة أرحب بكم من قلب طيب تمتد
أردني لماذا يريدون أن يكسروه ولن يكسروه أرحب بكم [NOISE] أرحب بكم بصوت قرر أن يكون وسيكون".
"59260"
,[
]
,"59260"
"[MUSIC] [NOISE] [FEMALE_1: أرحب بكم فرحمونني بقدر ما أحبكم إلى أهلي في لبنان إلى أهلي في بلاد العرب إلى أهلي في
العالم بأسره لبنانيتي وعروبتي [NOISE] وفرقي وعنفواني [NOISE] أرفع صوتي صارخا بالرفض".
"89600"
,[
]
,"89600"
"[MUSIC] [FEMALE_1: والمواجهة ضد ذلك الشيطان الرجيم الذي أفقد أصابعه العاقلة في المجتمع العربي الحبيب وفي الإعلام
العربي الساعي شاهدة طهمية لدعي التي أساد إلى القيم الروحية لشعب أنا منه [OVERLAPPING] وأنا أنا إبنتها المغورا".
"119130"
,[
]
,"119130"
"[MUSIC] [FEMALE_1: ولرسائل صناديق علمني ربي بها أن أحب وأن أسير وأن أسامح [NOISE] فوق ما هذه الشائعة !! من تقوى
إلتحمها إبليس فنسجت حولي لذا مصرنا ؟ يمكن".
"149120"
,"299070"
"[MUSIC] [NOISE] [FEMALE_1: أنا بشكرك من كل قلبي فرد فرد لأنه هذه الشعلة يمكن لو ماكانت إلى بدعا تكون تغيري ولو
كنت أنا مطرح فيري راح كون مطرحه كمان اليوم أنا بشكرك قلبا لحضورك [MUSIC]".
"326621"
[
,[
} :"metadata"
] :"FEMALE_1"
,"SPEAKER-NAME:نجوى كرم"
,"DIALECT:ar-lb"
"MODE:colloqsial"
,[
] :"MALE_1"
,"SPEAKER-NAME:Unknown"
,"DIALECT:ar-lb"
"MODE:colloqsial"
[
{
{
```


Figure 6: .json Files for Arabic Videos

Below are some examples of .json files for the Russian videos:


```
{
    "sentences": [
        {
            "0",
            "[MUSIC]",
            "23430"
        },
        {
            "23430",
            "FEMALE_1: [MUSIC] Закончился любимый уход за губами? Нет проблем, скрабы, которые мы подобрали сегодня, не
только делать, их можно есть, а коробочки для них просто рай для сладкоежек.",
            "33481"
        },
        {
            "33481",
            "[MUSIC]",
            "37561"
        },
        {
            "37561",
            "FEMALE_1: [MUSIC] К каждому скрабу и помаде мы сделаем оригинальную упаковку, первую баночку оформим в виде
розового маршмеллоу с милой рожицей. Нам понадобится контейнер с крышкой. Берём кусочек самозастывающей глины и увеличиваем
упаковку сверху, такая глина хороша тем, что её не нужно запекать, поэтому она идеально подходит для нашей цели. Добавляем
объём, сглаживаем неровности.",
            "63101"
        },
        {
```


Figure 7: .json Files for Russian Videos

2.1.2. Pdf Extraction

This project involves transcribing financial information from PDFs as shown in figure 8.

Figure 8: Example of transcription of financial Information from PDFs

2.1.3. Transcribe the Text within the Boxes in Images

In this project, our ambassadors transcribe the text exactly as it appears on the receipt, even with the spaces.

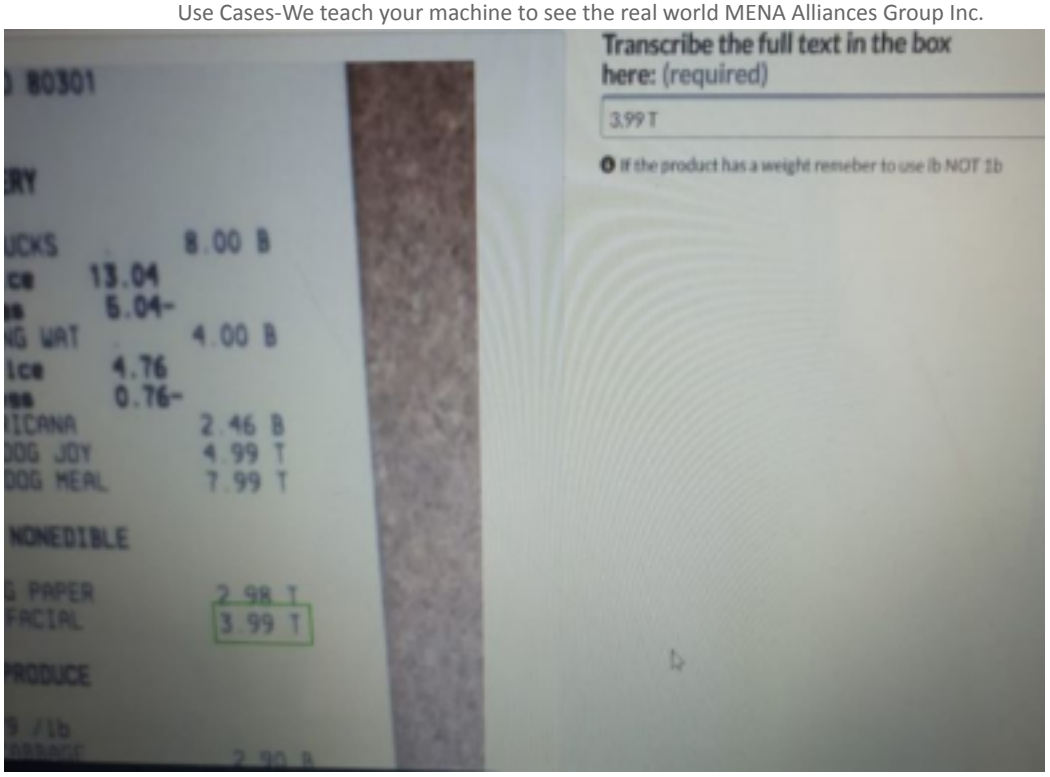

Figure 9: Example of transcription of Text

2.1.4. Transcribe Audio Clips

Our team's role in this project was to transcribe each audio clip by writing out the English words spoken in the audio clip, then define the intent of the audio clip from a drop-down menu with different options.

Figure 10: Transcription of Audio Text

2.2. Data Collection and Enrichment

Search engine algorithms use machine learning to drive stronger user engagement. By interpreting queries and assessing user intent, search results become more relevant, which creates higher user satisfaction.

Currently, our team of ambassadors work on data collection and enrichment by using an online search tool to verify the given information or elements in the task if it's right as given or not. If it's wrong, we collect the correct data and add it in order to reach the required results. On this category, we have worked on different projects with different clients as shown below:

2.2.1. Find Official Websites and Verify Agency Addresses:

In this project, ambassadors helped in finding the official websites for businesses and categorizing those businesses. They have to verify the elements of a full address, email, and phone number for a certain business. It provided a link to search through, and the ambassadors had to check out that link and see if the elements are correct or need to be changed. The picture below illustrates the job.

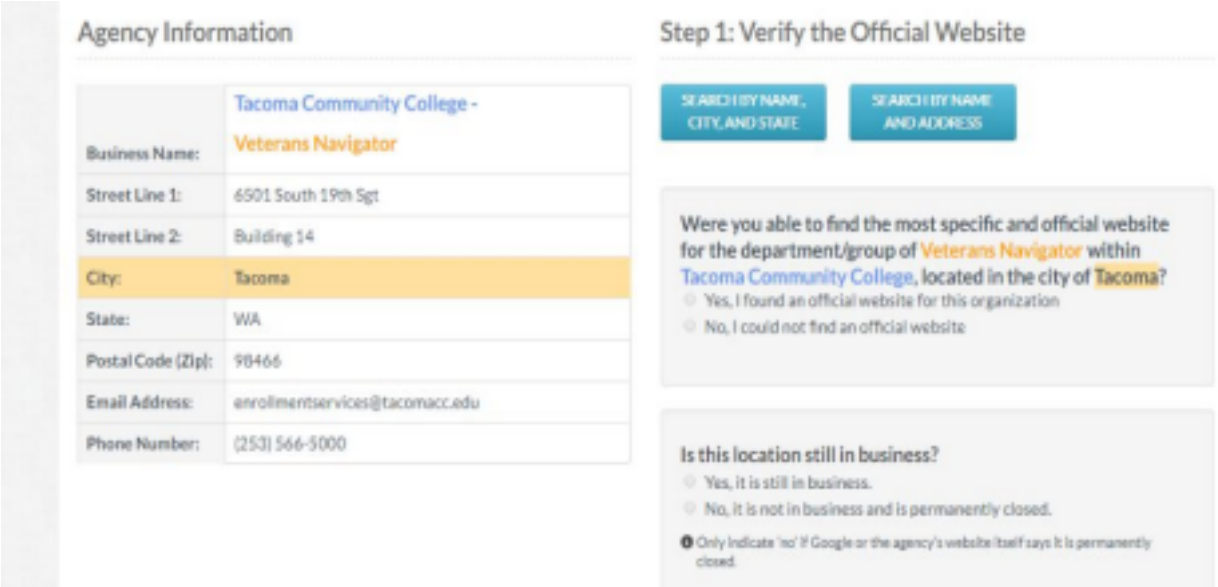

Figure 11: Verify the Official Website

2.2.2. What is the Brand Name for this Merchant

This job provided the remote ambassadors with a business name and a search button, so that they could search whether a brand name was common.

2.2.3. Data Collection – Speech Recognition

This project was implemented for the following languages:

- German
- British English
- Spanish (Spain)
- Italian
- Arabic

The purpose of this project was to help Google understand a wide variety of speech patterns and improve Google's ability to recognize what its users are saying when interacting with Google products and services. Data collected during this project was used to research and develop speech recognition technologies as well as other Google products and services that utilize voice recognition.

The method used for this project was recording short sentences that appear on an app to improve machine learning and voice recognition. Table A below shows the number of participants and recordings in each country and language:

Language	No. of Participants	Utterances/Transcribed recordings
German - Germany	300	500 utterances
English - UK	300	500 utterances
Italian - Italy	150	500 utterances
Spanish - Spain	300	500 utterances

Table A: Number of Participants and Recording in each country/ language

MENA Alliances team members participating in this project were trained by MENA Alliances training and quality control teams in each of the four locations on how to use the recording app.

Figure 14: Screenshot of typical screen with a phrase for repetition

MENA Alliances' quality control team kept up-to-date oversight of the quality of each recording and upload in order to reach the required goals for the project.

2.3. Data Annotation

Building a solution that thinks and acts like a human requires large volumes of training data. For a machine learning solution to understand this information, the data must be properly categorized and annotated for the application. With high-quality, human-annotated data, companies can build and improve AI and machine learning applications. The result is an enhanced customer experience for related solutions including product recommendations, relevant search engine results, computer vision, speech recognition, chatbots, and more.

MENA Alliances has the expertise and resources to help you quickly scale data annotation for a variety of data types, including text, audio, speech, image, and video.

This type of job requires high accuracy, great concentration, and patience. It involves meticulously annotating different elements like humans, cars, invoices' parts, rocks, and more. When working with MENA Alliances, you gain access to our skilled team of linguistics professionals and project leaders who have perfected their craft at this type of project through over ten years of experience. We are helping our clients train machine learning programs to better understand text, mimic human thought, and respond more accurately to human interaction. Examples of these projects are included below.

2.3.1. Draw Rectangles around Rocks in a Field

Our remote professionals used the box tool to draw a rectangle around each rock which is greater than 10 pixels in the longest dimension. The rectangle should completely cover the rock with minimal buffer space around the rock.

2.3.2. Draw Bounding Box around Fields in Documents

This project included drawing a bounding box around sections and fields on Invoice documents to help sharpen data annotation.

2.3.3. Draw Bounding Boxes around items with Classes on Receipts

This job required our ambassadors to look at images of receipts and put bounding boxes on each individual item in four different categories: Item Name, Item Weight, Item Price, and Weight Tag.

2.3.4. Review of Annotations and their Rating

As explored above, we are not just annotating, but are reviewing others' annotations as well. Here, our team members review the bounding boxes on each receipt image for each item on the receipt in one of four categories: Item Name, Item Weight, Item Price, Weight Tag. They then determine the quality of the existing boxes.

2.3.5. Semantic Segmentation

Semantic segmentation is a type of image annotation. It involves ambassadors labeling every part of an image so that every single pixel is accounted for. A fairly average image (in terms of size and complexity) takes anywhere from 45 minutes to an hour to annotate. Clients will generally need far fewer of these images to train a computer vision model because they are so accurate.

Generally, it works like this: you provide a MENA Alliances team member with an image and an ontology of objects they need to find.

This can be an image of a city street for an automated vehicle project, an open box with parts in it for a manufacturing logistics job, or a whole host of other use cases.

Our remote team members segment the image by regions of interest using different types of tools like polygons, super pixels, and a painting brush.

Semantic segmentation has become more and more common among computer vision projects because of its high accuracy, and it can be ideal if you don't have an abundant set of source data. While more well-labeled data is always a good thing, if you have a limited amount for your project, you can get more actionable information for your models from every single image. On the flipside, annotating pixel-by-pixel takes a while and, out of all these tasks, the cognitive load on the worker is the highest for semantic segmentation. Since each image takes serious time and many involve robust ontologies.

The important thing is knowing which of these methods is right for your company and your project - and MENA Alliances can help you make that call.

Our computer vision remote talent pool is skilled at a wide array of use cases from bounding boxes to semantic segmentation. We apply best practices developed from annotating millions of images and videos to deliver best in class computer vision projects for AI leaders around the world. Our remote specialists have worked on all the leading tool platforms giving you the flexibility to choose from best tools - or to bring your own tools. With our responsive team leads, our clients can easily communicate changes through open collaboration and feedback loops.

2.4. Data Categorization (Images, Videos, Texts, etc.)

Whether you have a catalog of thousands of product images for an e-commerce site or millions of user generated images, we can provide you with a scalable and accurate solution to categorize any image catalog with the correct data. That data can provide invaluable context, searchability, and analysis for both internal and external audiences.

Handling image categorization internally can be a massive drag on resources. The most efficient way of handling this work is by combining automation and an API-driven, on-demand workforce. MENA Alliances can handle both ongoing image categorization needs and processing large batches of images for the purpose of training machine learning algorithms. Below are some examples of projects we've performed in this realm.

2.4.1. Product Categorization

Each image in this task is displayed and our ambassador' role is to answer whether a product or item is present within the image. For each image, our ambassadors have to select an option from the list: yes, no, or unclear.

2.4.2. Determine the Document Type

Next, we review a PDF page to determine the type of document and comb through its details.

2.4.3. Helped in Categorization of Flight Cabin Crew Report

Buried in the vast amount of user-generated data is a wealth of intelligence that can be mined and used to make smart decisions. Increasingly, data analytics solutions are helping businesses intelligently collect, listen to, and analyze that data to gain relevant and actionable insights. Data analytics providers rely on machine learning and natural language processing (NLP) technologies to power those solutions.

On a recent job, we had reports written by an airline cabin crew. The reports are about catering on board an aircraft, although the dataset may also contain what's called noise (reports incorrectly identified as catering). Our mission is to review the reports to determine what type of issue they are describing and what problem is being reported. For each report, we should choose a pair of issue types and a problem.

2.4.4. Help in Classifying Product Images

This job gives us a chair, and we have to choose its type: office chair, folding chairs, dining chair, or something else.

2.4.5. Classify Personality Traits in a Video

In this project, our remote team members' goal was to classify personality traits of people in videos, their apparent emotional state, gender, age, and more.

2.5. Data Validation

This kind of work focuses on differentiating between two items in a data set. In addition, we test their validity and conformity with one another. The below cases are examples of this type of project that MENA Alliances led to great success.

2.5.1. Matching Leads and Transactions

In this task, our ambassadors are provided with information about potential lead-transaction pairs, such as contact information associated with the lead and the transaction. Then, they are asked to see whether there is sufficient evidence that the person who submitted the lead is associated with the person who completed the transaction. The ambassadors have the right to look up any information (for example: vehicle type, zip code population density, etc) for help them to make the decision.

2.5.2. Does this Transaction Match the Record

Our team members' task in this job was to read transaction information and determine if the extracted fields match the transaction information or not.

2.6. Sentiment Analysis

Accurate sentiment analysis requires context and continuity that can only be gained by transferring domain knowledge to a managed team. Leveraging a dedicated workforce to structure your company's data based on distinguishable opinions and emotions ensures consistency and a more powerful application across a number of audiences.

Using an embedded Twitter widget, our remote ambassadors analyze text (for example, social media posts or forum comments) about your topic classifying sentiments and selecting topic-based categories. One of the projects that we worked on is:

2.6.1. Arabic Language Tweet Analysis

The project involved reading tweets about the upcoming World Cup, categorizing the topics being discussed and then determining the sentiment of the author of the tweet.

2.7. Search Relevance

2.7.1. SEO Projects with an E-Commerce Company

This project was for a client who is an e-commerce company with a library of "user friendly names" for several product categories. The task was to audit those names. There were 18,528 categories, along with the "breadcrumbs" that went along with them.

The task given to our MENA Alliances team members was to determine which category of names would be the best option for search engine optimization. MENA Alliances team members working on the project were asked to fill out whether or not they would propose a new friendly name. The review also included keyword research. For example, for "Antique Bed Sheets," what has a higher search volume: Antique Bed Sheets or Antique Bed Linens? English proficiency was very important. The client was pleased with the names supplied.

2.8. Translation and Localization

2.8.1. A Publishing Group

A major media publishing company asked MENA Alliances to localize the translation of the *Time Out Dubai* website and translate articles for *Arabian Business Magazine* in Dubai.

MENA Alliances' role included translation and localization for business and marketing content, along with managing and ensuring the quality of more than 30 translators and proofreaders to deliver within the designated time frame. We also offered other support services to the organization, such as

uploading the content of their website. MENA Alliances completed the project to great success and ultimately localized upwards of 400,000 words swiftly while maintaining accuracy.

2.8.2. Womanity Foundation

MENA Alliances' programmers developed the "B 100 Ragl" website to support a video series of the same name created by the Womanity Foundation. The video series focused on topics like gender discrimination and women's empowerment, which struck a cord with viewers and inspired demand for more information on the subject. MENA Alliances' language specialists and translators provided translation and localization services for the video series to help its content reach new global audiences.

2.8.3. Other Transcription and Localization Jobs

In addition to *Time Out Dubai* and Womanity Foundation, MENA Alliances translated for multiple international and regional organizations including Dubai Aviation, Ejtimaat, and Streamline Marketing Group (SMG), Abdul Latif Jameel, and many, many more.

2.9. Data Entry

MENA Alliances team members can do all types of data entry to help preserve your in-house team's resources and enable your company to scale faster.

No matter what your company needs, we can help you make it happen - from anywhere in the world. Contact us to get started!