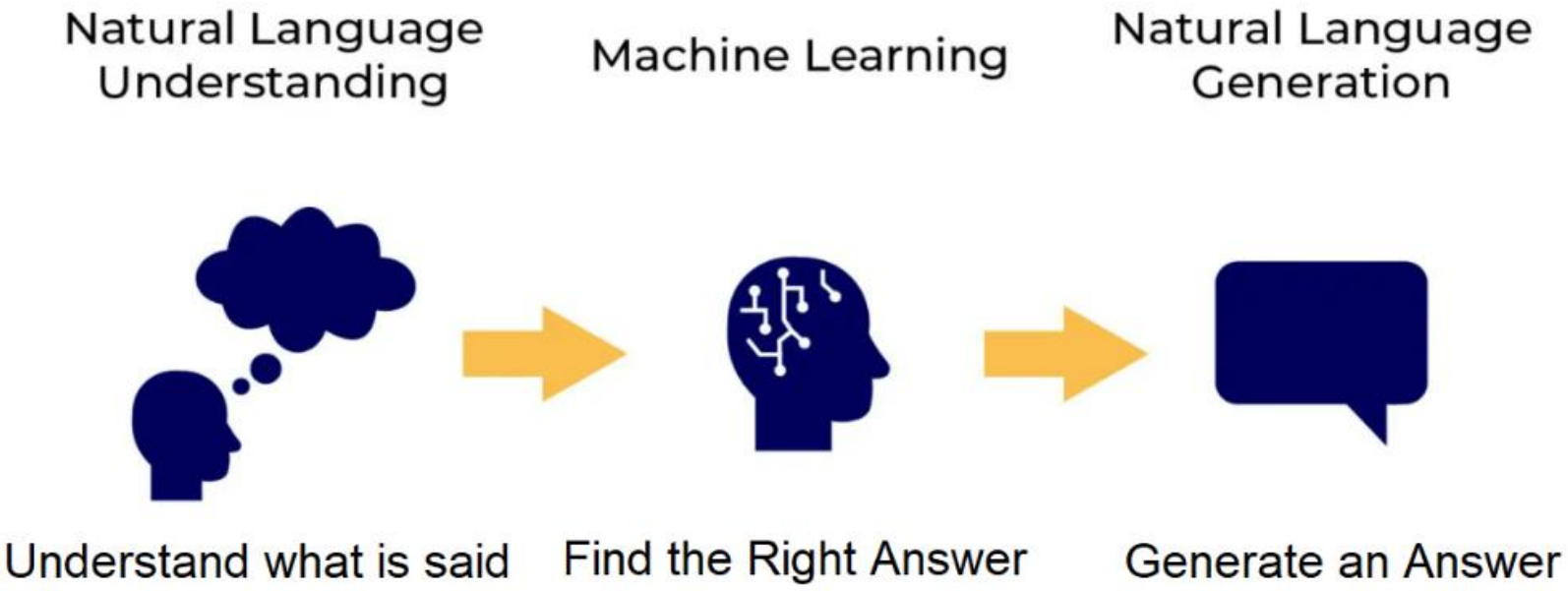
Natural Language Processing

Natural Language Processing or NLP is a field of Artificial Intelligence that gives the machines the ability to read, understand and derive meaning from human languages.

In simple terms, NLP represents the automatic handling of natural human language like **speech** or **text**, and although the concept itself is fascinating, the real value behind this technology comes from the use cases.

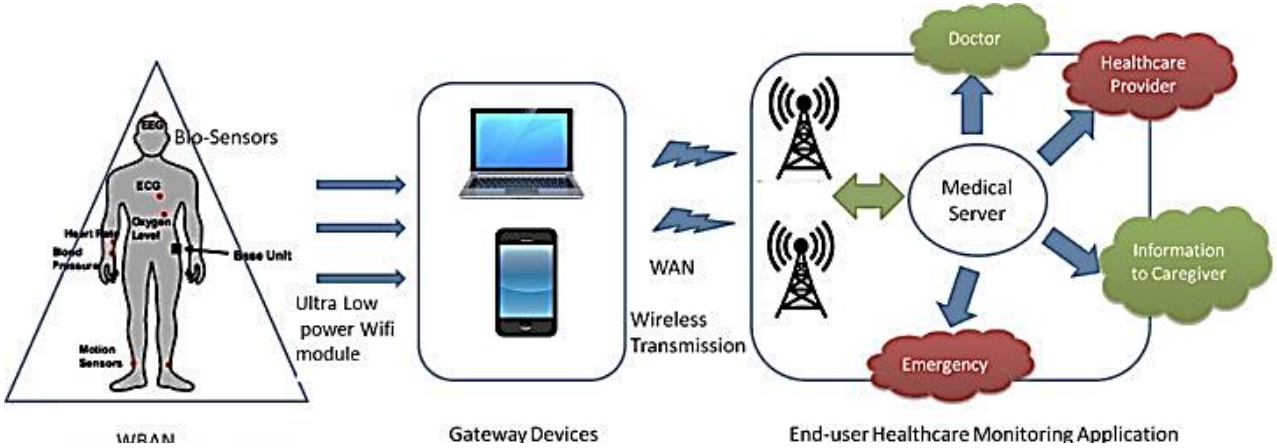
Natural Language Automation Consists:

Understanding: NLU (Natural Language Understanding)
Decisioning: NLP (Natural Language Processing)
Response: NLG (Natural Language Generation)



NLP enables recognition and **prediction of diseases** based on electronic health records and patient's own speech. This capability is being explored in health conditions that go from cardiovascular diseases to depression and even schizophrenia.

For example, **Amazon Comprehend Medical** is a service that uses NLP to extract disease conditions, medications and treatment outcomes from patient notes, clinical trial reports and other electronic health records.



Text classification is a common NLP use case widely implemented across organizations.

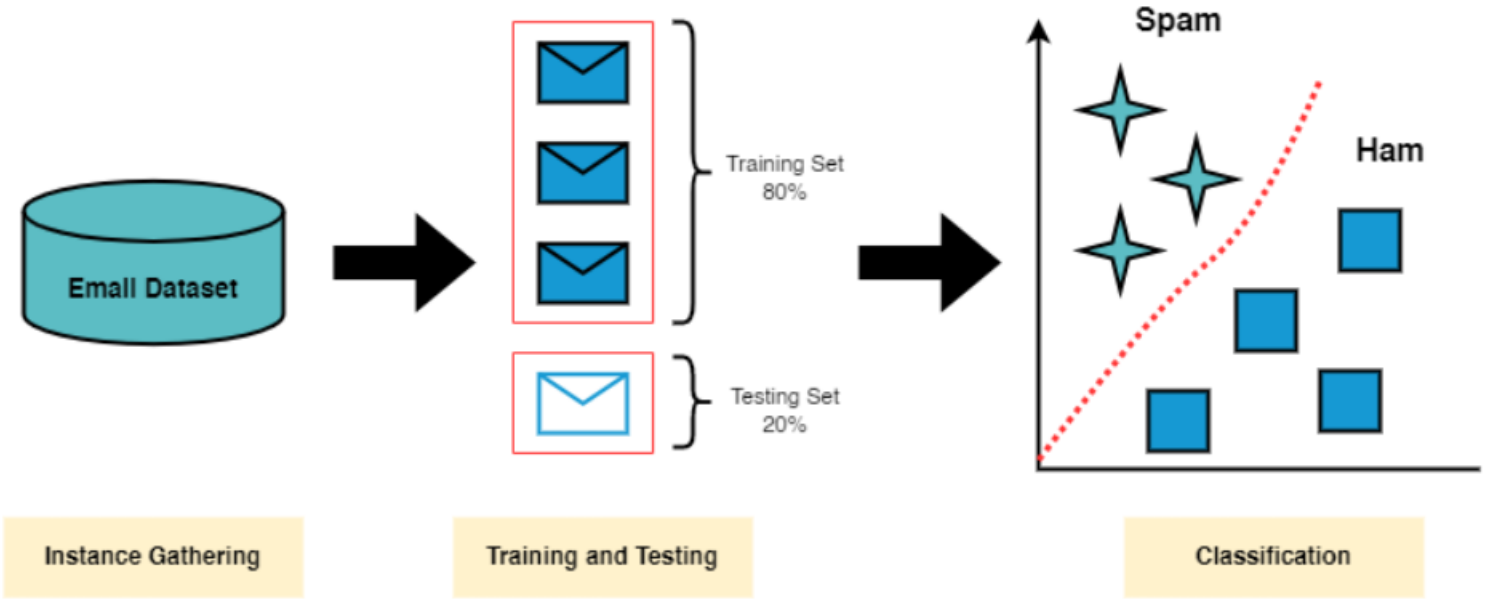
For example,

- A telecom company could use text classification to classify their customer support call transcripts into different issue categories and then will look into the details for insights.

- An e-commerce company could use this to classify the social media data to their products categories based on the content

- More traditional use-case, classifying texts to positive/ negative/ neutral sentiment

Companies like Yahoo and Google filter and classify your emails with NLP by analyzing text in emails that flow through their servers and **stopping spam** before they even enter your inbox.



Having an insight into what is happening and what people are talking about can be very valuable to **financial traders**. NLP is being used to track news, reports, comments about possible mergers between companies, everything can be then incorporated into a trading algorithm to generate profits. Remember: buy the rumor, sell the news.

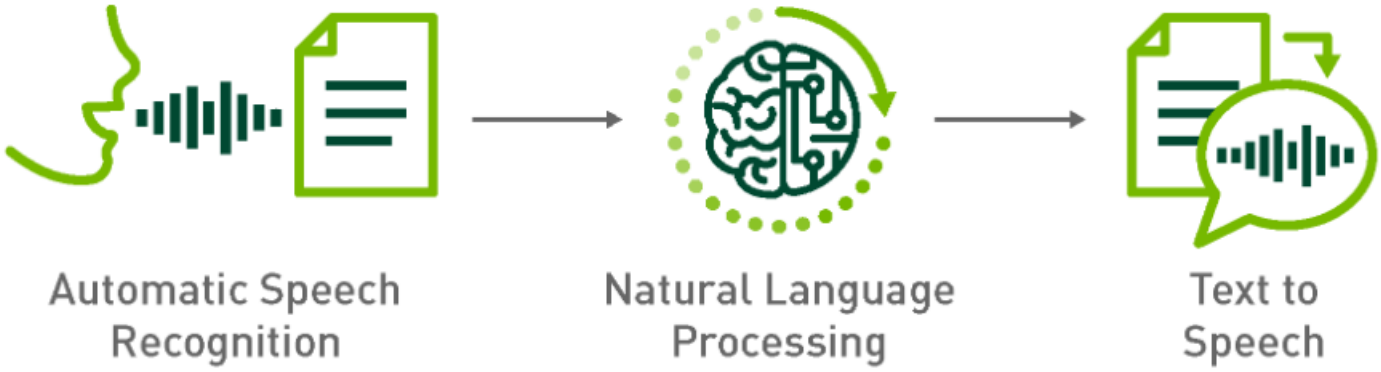
Resume evaluation

NLP can be used in combination with classification machine learning algorithms to screen candidates' resumes, extract **relevant keywords** (education, skills, previous roles), and classify candidates based on their profile match to a certain position in an organization.

Additionally, NLP can be used to **summarize** resumes of candidates who match specific roles in order to help recruiters skim through resumes faster and focus on specific requirements of the job.

Speech Recognition

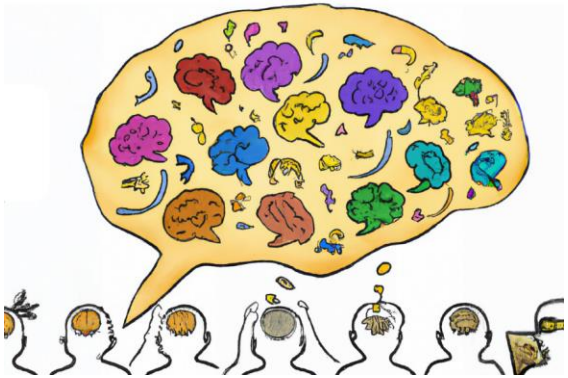
NLP has matured its use case in speech recognition over the years by allowing clinicians to transcribe notes for useful data entry. Front-end speech recognition eliminates the task of physicians to dictate notes instead of having to sit at a point of care, while back-end technology works to detect and correct any errors in the transcription before passing it on for human proofing.



Large Language Models (LLMs)

LLMs are foundational machine learning models that use deep learning algorithms to process and understand natural language. These models are trained on **massive amounts of text data** to learn patterns and entity relationships in the language.

- LLMs can perform many types of language tasks, such as translating languages, analyzing sentiments, conversations, summarization and more.
- They can understand complex textual data, identify entities and relationships between them, and generate new text that is coherent and grammatically accurate.



Thank You