

Welcome! We will begin shortly



**Live Virtual Class**

**Intro to the World of AI**

### Learning Outcomes

- Understand the key terminologies in the World of AI
- Understand how these key terminologies are connected
- Gain an understanding of the Artificial Intelligence landscape

**Guidelines**



Listen only mode



Ask questions at the interest of  
the larger audience



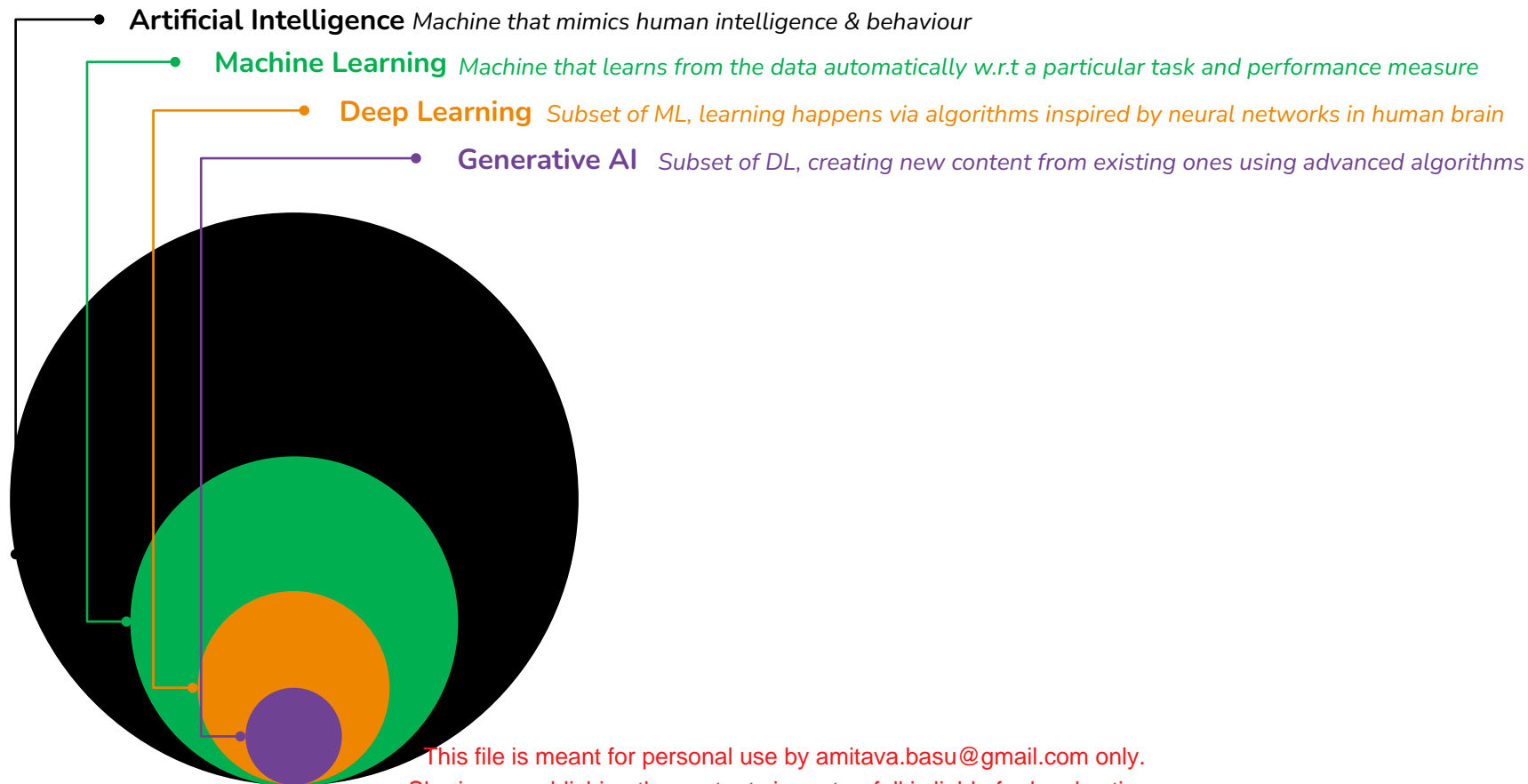
Questions in the  
Q&A Box

**Thank you**

Kindly utilize the chat box for **subject-relevant questions only** to maximize your learnings from the session.

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# Key Terminologies in The World of Data

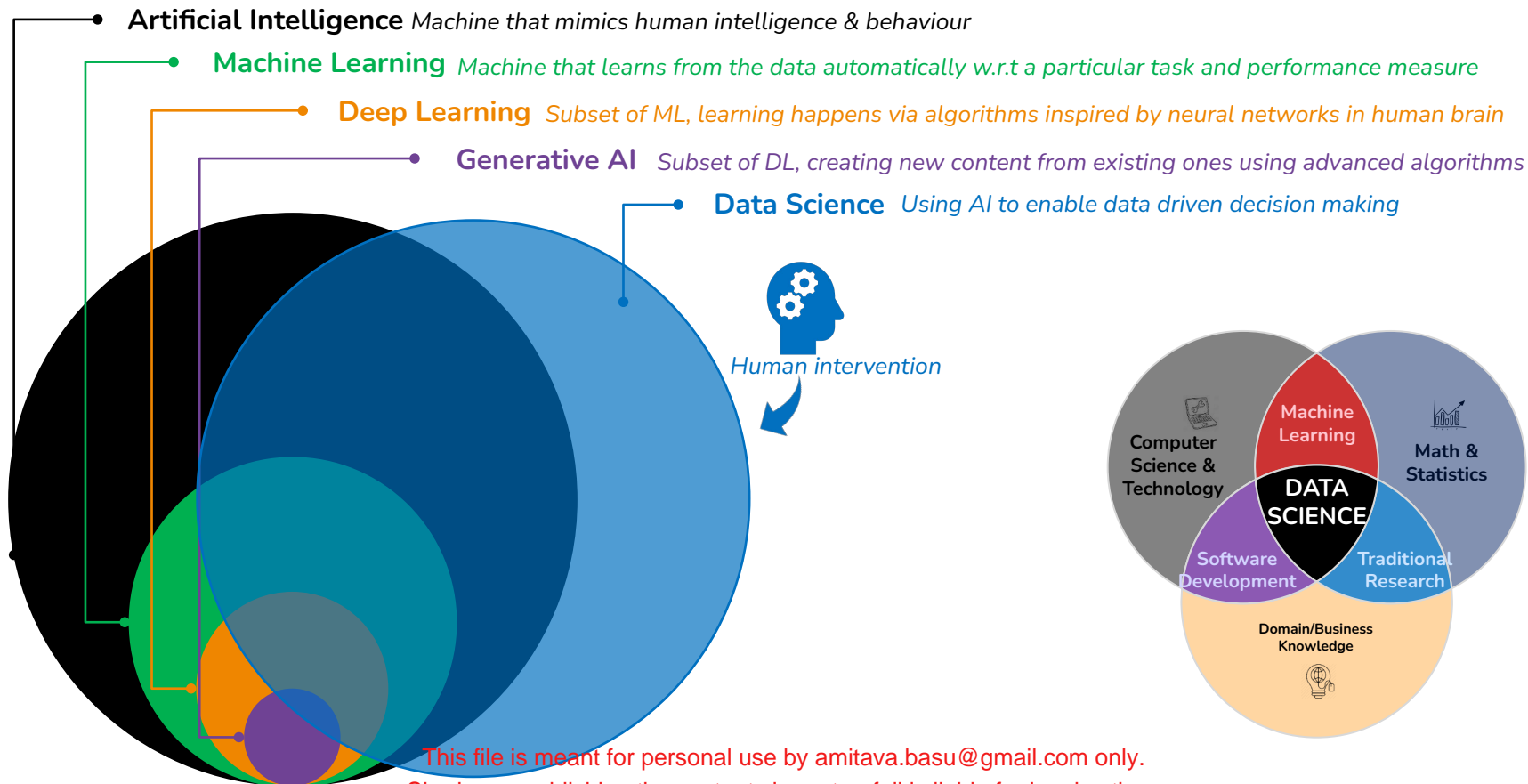


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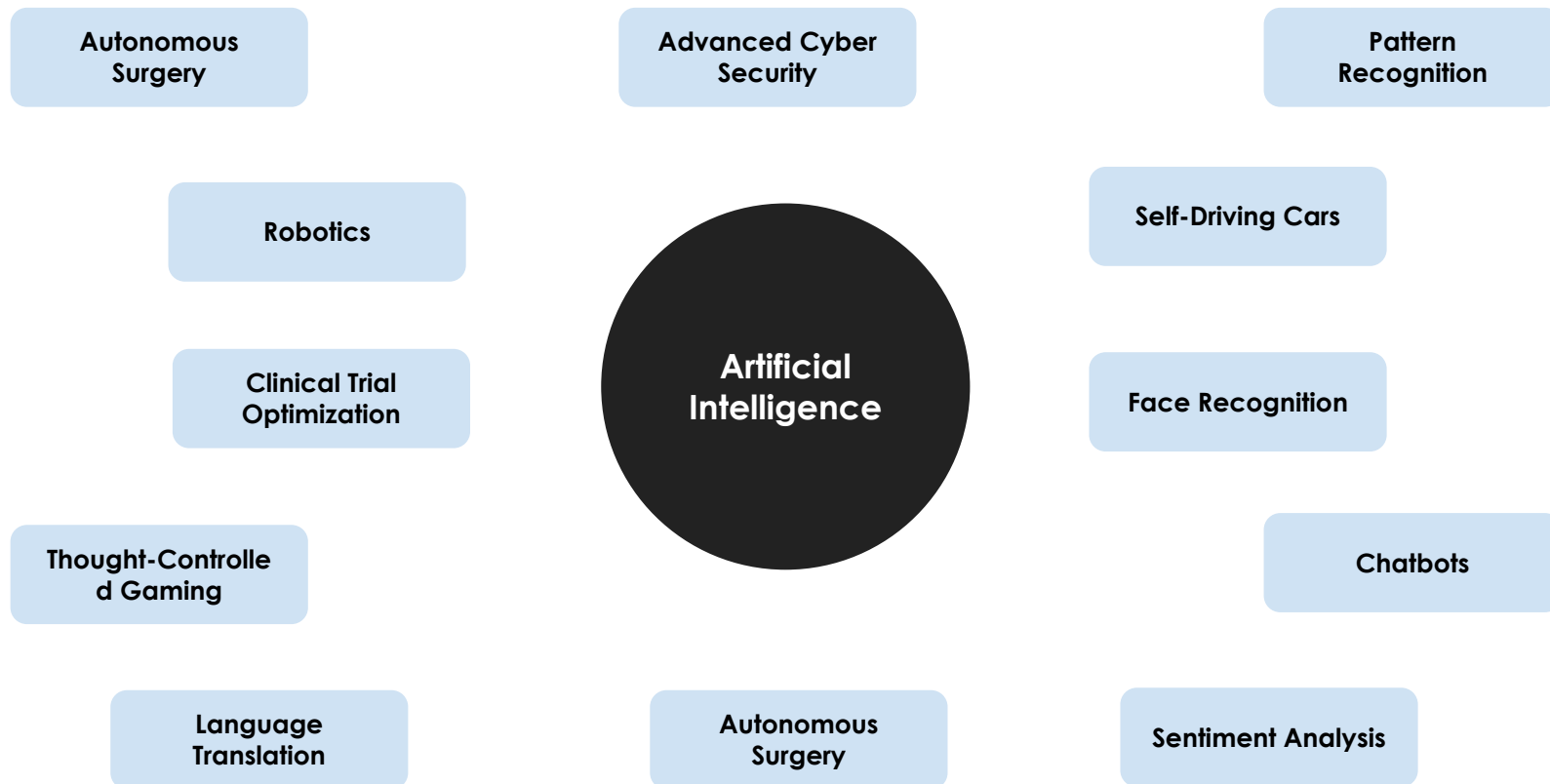
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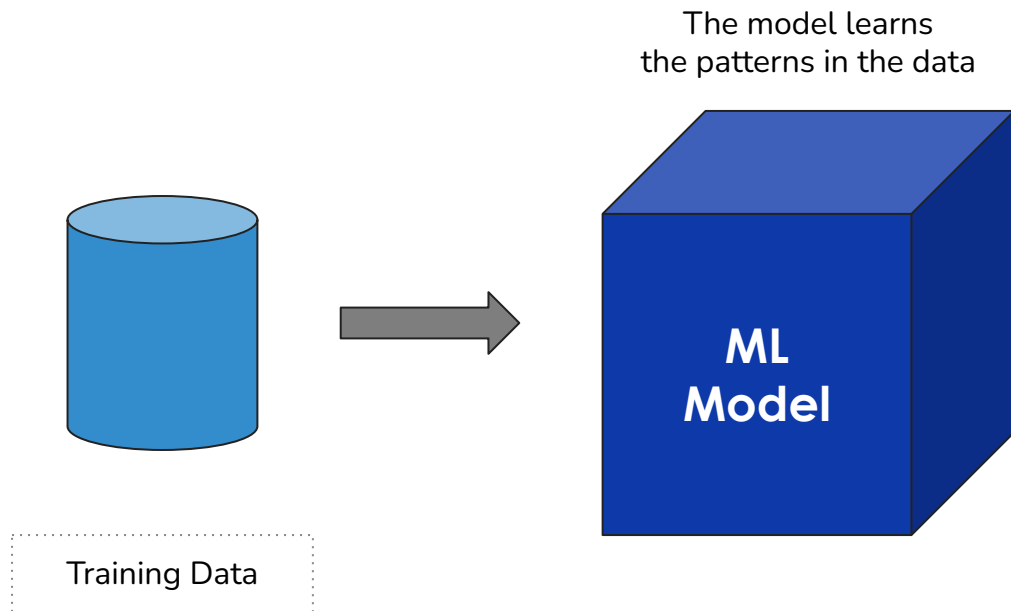


# What is Artificial Intelligence?

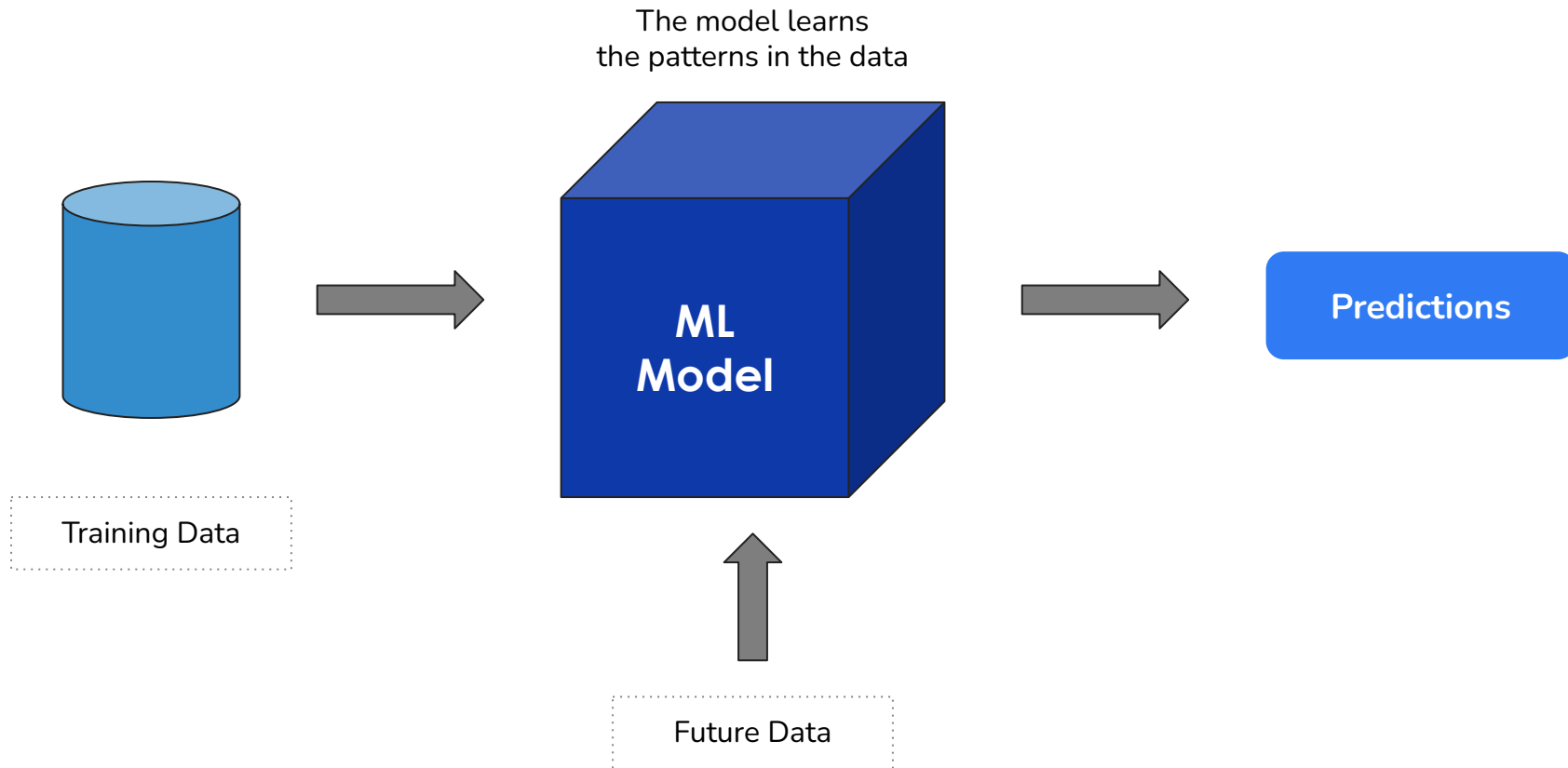


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# What is Machine Learning?



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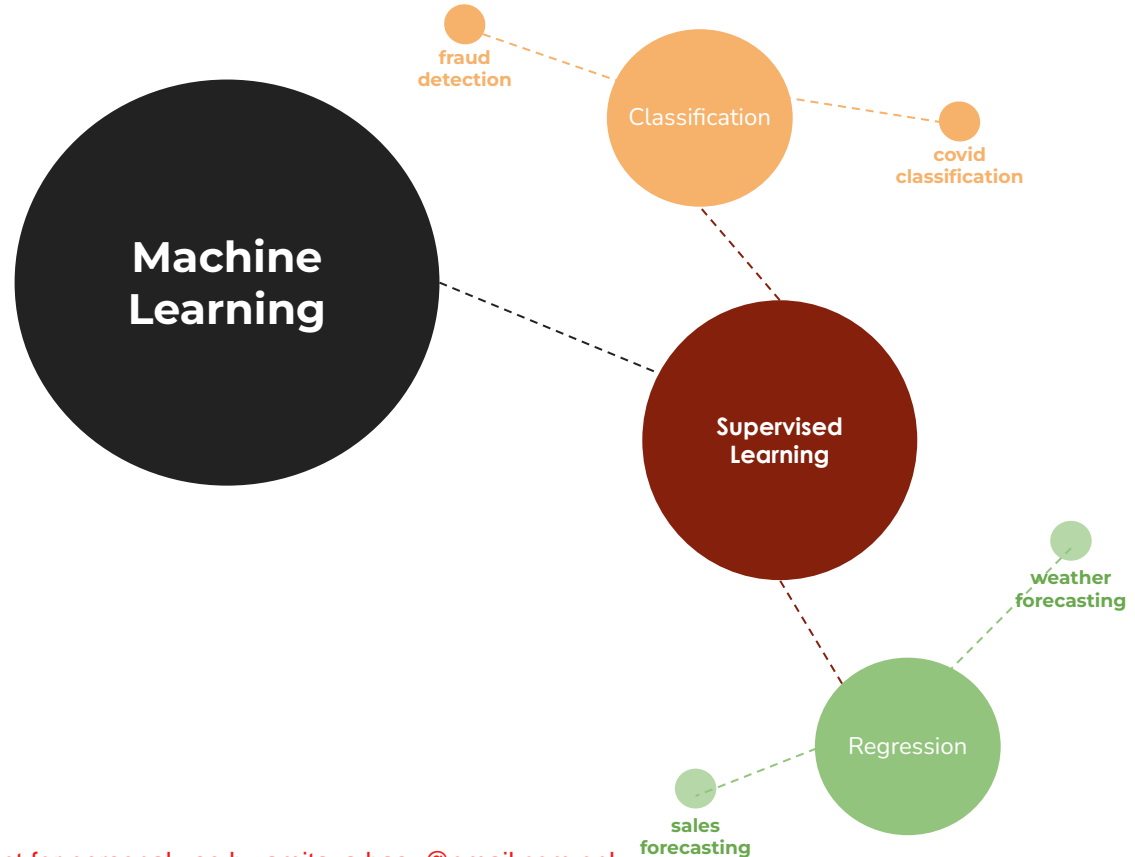


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# Types of Machine Learning

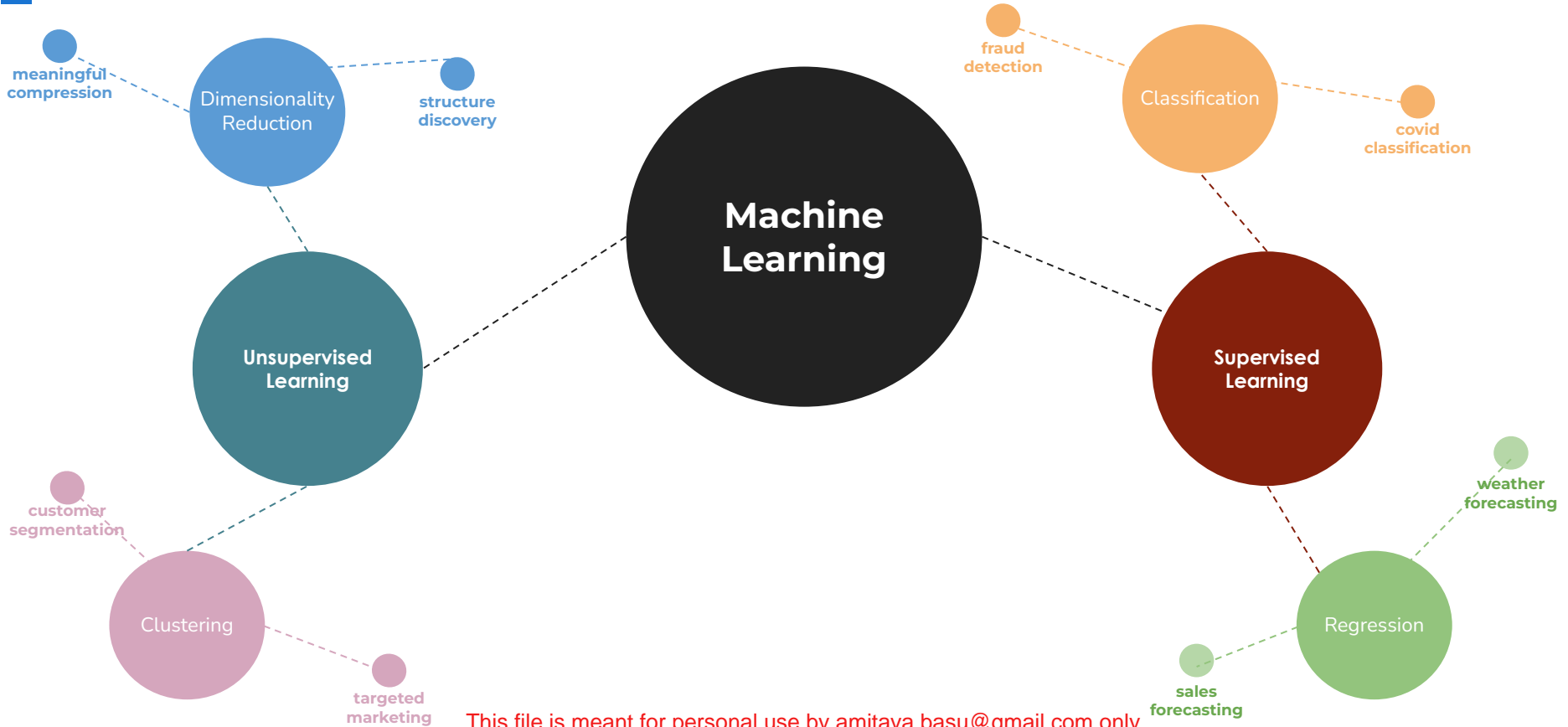


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# Types of Machine Learning



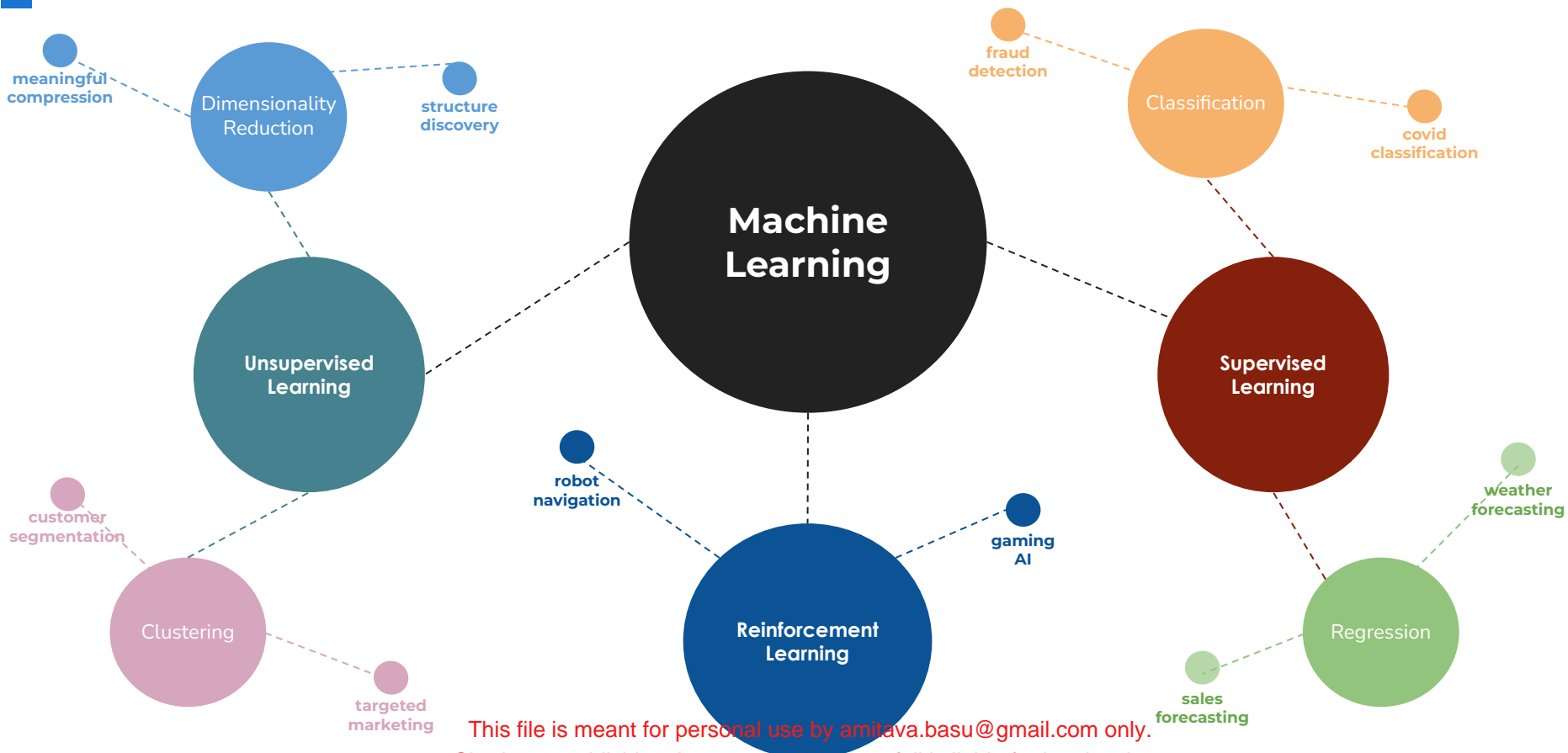
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# Types of Machine Learning

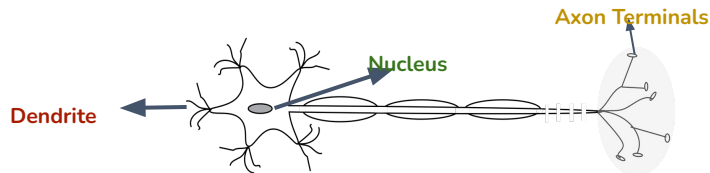


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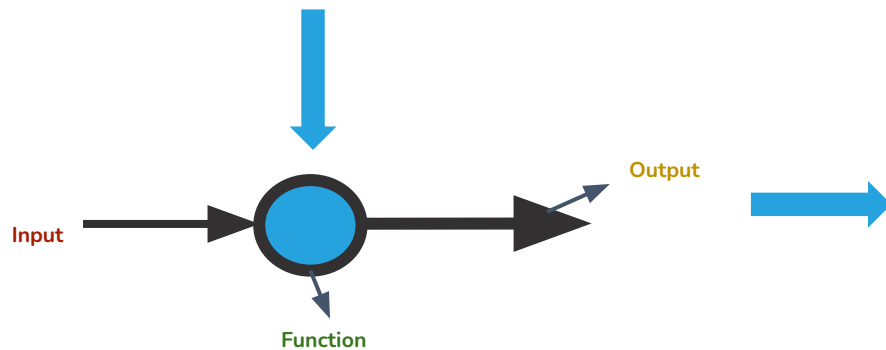
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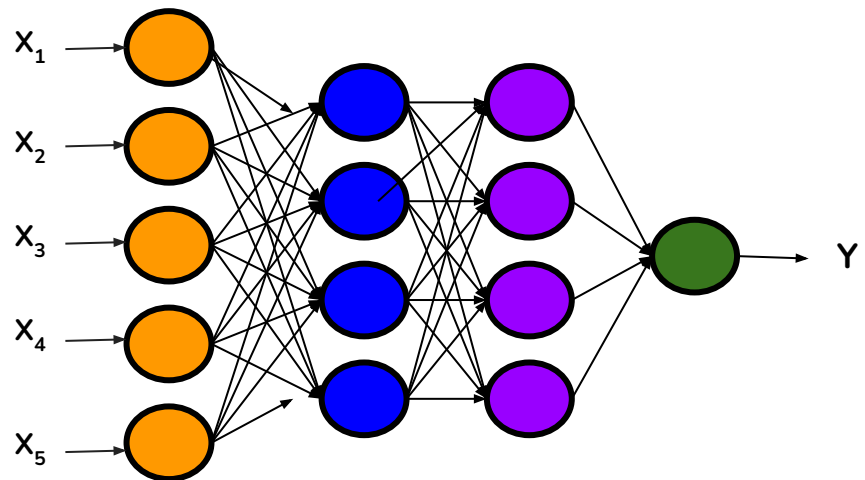
# What is Deep Learning (DL)?



Biological Neuron



Artificial Neuron



Data

Neural Network

Prediction

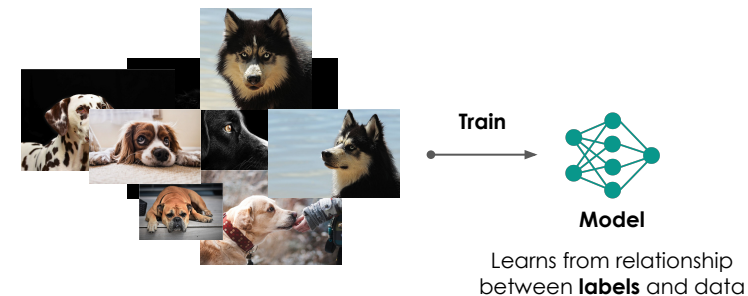
Artificial Neural Network

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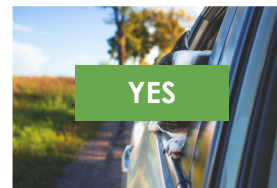
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# Types of AI

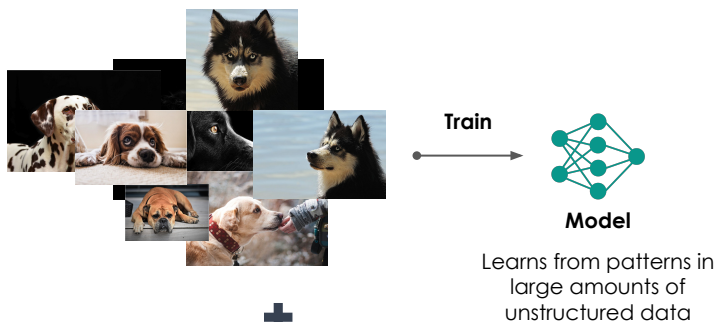


Could this be a dog?

**Classify**

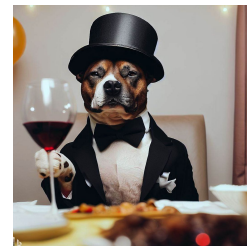


**Discriminative AI**



Create an image of dog, having fun in a party, wearing a black tuxedo with wine in one hand

**Generate**



**Generative AI**

**Other images on the internet**

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**Which of the following are examples of the computational paradigm of Data Science?**

A

Effectiveness of a new medication through randomized trial

B

Weather forecasting based on historical and weather patterns

C

Impact of a new policy on citizens

D

Optimize routing of vehicles to minimize costs

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# Data Quiz

Effectiveness of a new medication through randomized trial

New medications are tested in a very controlled manner and amongst a specific, predetermined group to ensure that we get a clear understanding of the effects and side-effects of the medications before rolling them out for large-scale production

Weather forecasting based on historical and weather patterns

Weather forecasting systems now use data from a variety of sources (like weather stations, satellites, etc), assimilate the data, and then use efficient computationally powerful mechanisms to provide accurate forecasts

Impact of a new policy on citizens

Impact of new policies on citizens is also conducted in an experimental format with careful considerations and comparative analysis to ensure that we arrive at the right decisions that would optimize the preset goals

Optimize routing of vehicles to minimize costs

Vehicle routes are optimized by taking into consideration a large number of factors (like geographical data, traffic data, etc.), identifying the constraints, and running computationally powerful algorithms to establish the most cost-effective route

**In World War II, which group of mathematicians played a crucial role in breaking German encryption codes?**

A

The Codebreakers

B

The Enigma Team

C

The Los Alamos Group

D

The Navajo Code Talkers

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# Data Quiz

The Codebreakers

A diverse group of mathematicians, cryptographers, and intelligence personnel who played a pivotal role in breaking complex codes and ciphers during World War II. They helped decipher encrypted messages and provided invaluable intelligence that contributed to Allied victories.

The Enigma Team

Enigma was a complex electro-mechanical device used by the German military during World War II to encrypt and decrypt secret messages. The machine's encryption was broken by Alan Turing and team, resulting in a significant intelligence advantage for the Allies and contributing to their eventual victory.

The Los Alamos Group

Stanislaw Ulam and his group of mathematicians at Los Alamos National Laboratory made substantial contributions to computational methods, including Monte Carlo simulations, which have become fundamental techniques in statistical analysis and machine learning.

The Navajo Code Talkers

A group of Native American soldiers who played the role of code talkers in World War II, using the Navajo language to create an unbreakable code. They were instrumental in securing military communications and contributing to Allied success.

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**In 2011, IBM's AI system competed on the quiz show Jeopardy! and defeated human champions. What was the name of this AI system?**

A

Deep Blue

B

Watson

C

AlphaGo

D

HAL 9000

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# Data Quiz

Deep Blue

A supercomputer developed by IBM that gained worldwide recognition for defeating reigning world chess champion, Garry Kasparov, in a six-game chess match in 1997. The victory marked a significant milestone in the field of AI, showcasing the potential of machine intelligence in complex strategic games.

Watson

An advanced AI system developed by IBM that showcased its ability to understand and process natural language and provide accurate answers to complex questions. Its capabilities have since been applied in various fields, including healthcare, finance, and customer service.

AlphaGo

An AI program developed by DeepMind, a subsidiary of Alphabet Inc. that made headlines in 2016 when it defeated the world champion Go player, Lee Sedol, in a five-game match. The success showcased the potential of AI in surpassing human expertise in strategic decision-making.

HAL 9000

A fictional sentient computer system designed to assist and manage operations on a spacecraft. Its malfunction and subsequent conflicts with the human crew highlight potential risks and ethical dilemmas associated with advanced AI

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Which of the following are examples of cloud computing services?

A

Amazon Web Services

B

Hadoop

C

Microsoft Azure

D

Apache Spark

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# Data Quiz

Amazon Web Services

A cloud computing platform offered by Amazon. It provides a wide range of cloud-based services, including computing power, databases, analytics, machine learning, and more, enabling businesses and individuals to build, deploy, and manage applications on the cloud.

Hadoop

An open-source framework that enables distributed processing and storage of large datasets across clusters of computers. It provides a scalable and cost-effective solution for processing and analyzing big data.

Microsoft Azure

A cloud computing platform offered by Microsoft. It provides a wide range of cloud-based services, including virtual machines, storage, databases, AI, analytics, and more, enabling businesses to build, deploy, and manage applications and services with flexibility and scalability on the cloud.

Apache Spark

An open-source distributed computing system designed for processing and analyzing large-scale datasets. It provides a fast and flexible framework for in-memory data processing, supporting a wide range of applications on big data analytics.

**Which of the following is LEAST LIKELY to be the output of a generative AI model?**

A

A presentation for a lecture on data science based on provided instructions regarding content, audience, and session duration

B

Answers to questions regarding a popular tourist spot based on an images of the spot

C

A portrait of the Leaning Tower of Pisa with artistic features of a Leonardo da Vinci painting

D

Identifying whether a customer is likely to default on loan repayment based on credit history and other financial attributes

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# Data Quiz

A presentation for a lecture on data science based on provided instructions regarding content, audience, and session duration

Answers to questions regarding a popular tourist spot based on an images of the spot

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Identifying whether a customer is likely to default on loan repayment based on credit history and other financial attributes

Generative AI models understand the relationship between instructions and presentation content by first learning from a collection of existing presentations and their instructions. They then 'decode' new instructions to generate relevant content.

The model first analyzes the visual features of the image (computer vision), then understands the question (natural language processing), and then generates a relevant answer based on its understanding of the image and the question

Generative AI models can transfer artistic styles between different image by identifying the underlying patterns. These style transfer abilities allow for the transformation of an image to adopt the artistic style of another image.

Problems like the prediction of likelihood of loan repayment default are effectively dealt with by discriminative AI algorithms. They are generally more robust in these type of tasks as they learn the decision boundaries directly.

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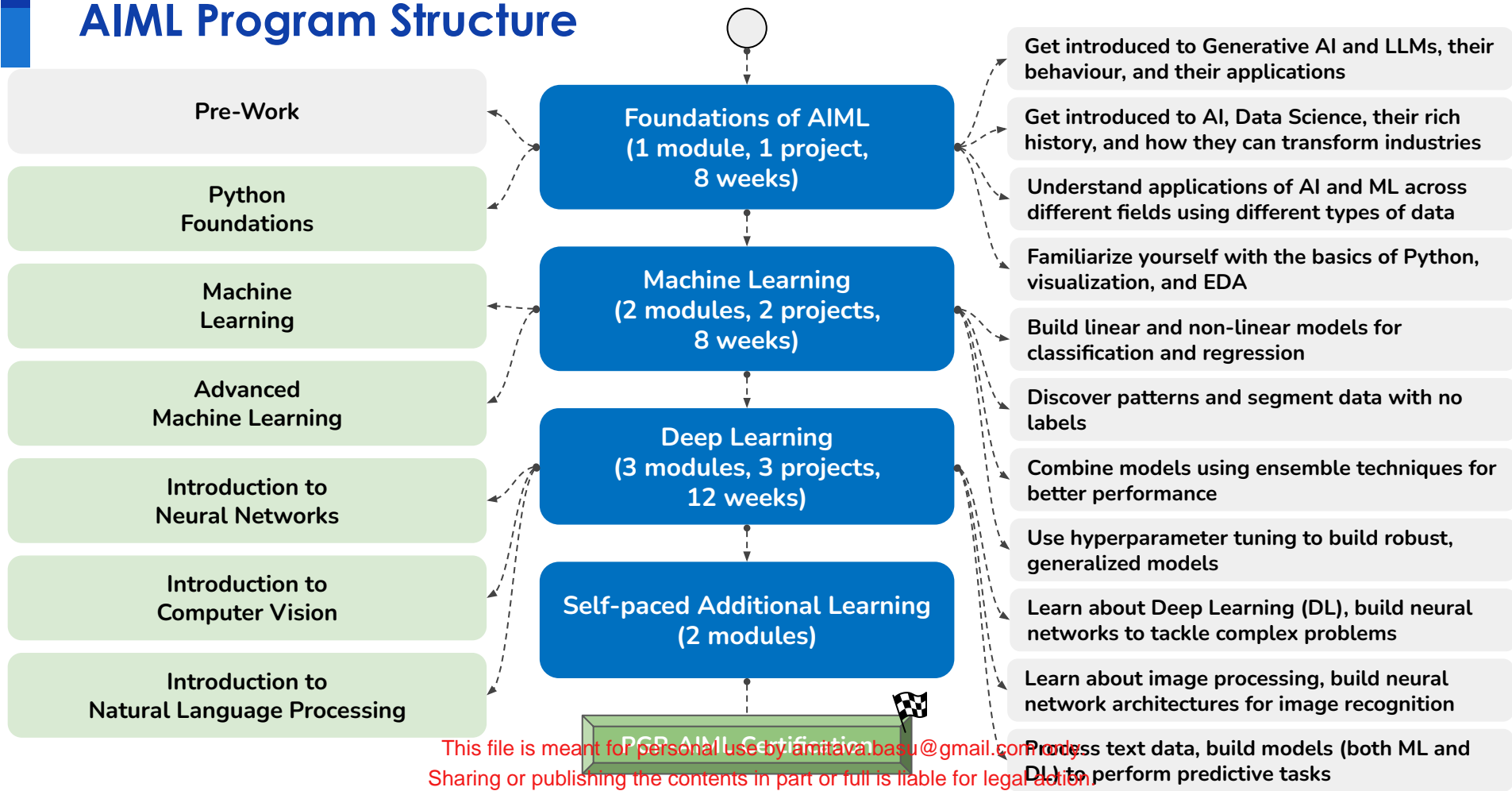


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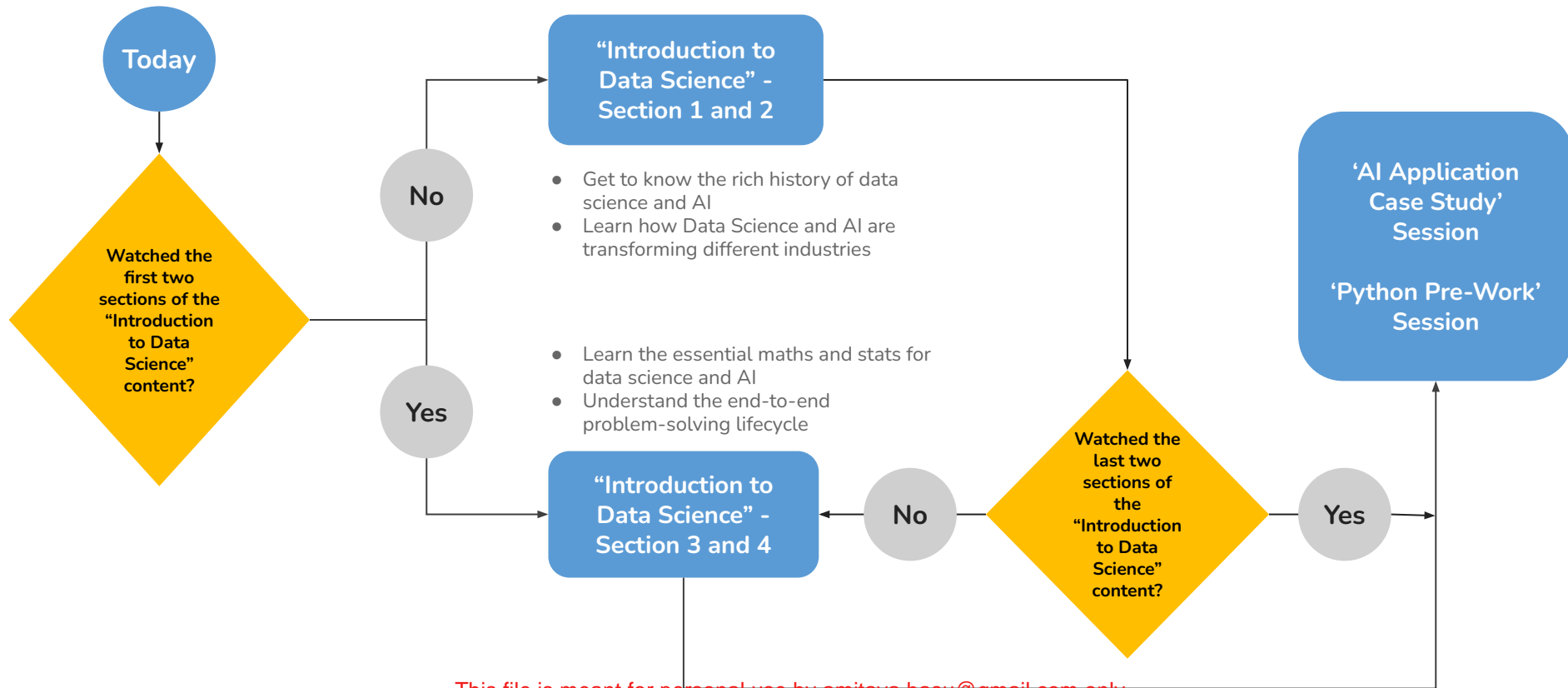
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# AIML Program Structure



# Next Steps



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# Thank you!

**We'd love to hear your feedback!**  
**Please share your feedback for the session**

**Wish you all the very best!**

**Please feel free to raise a [Support Request](#) through Olympus in case of any queries**

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