Foundation models and Segmentation

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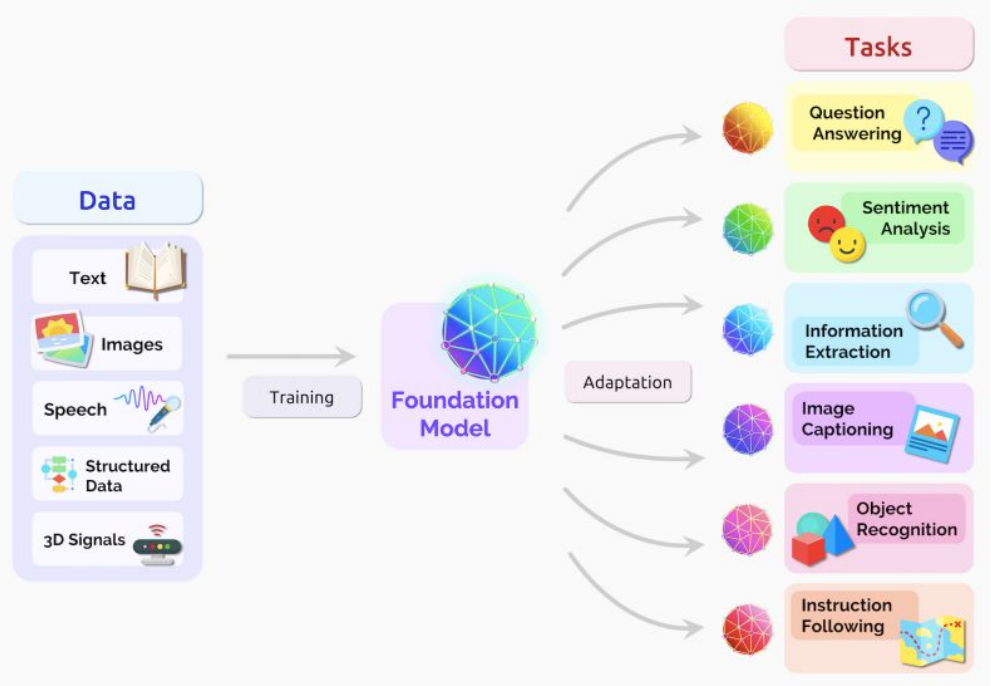
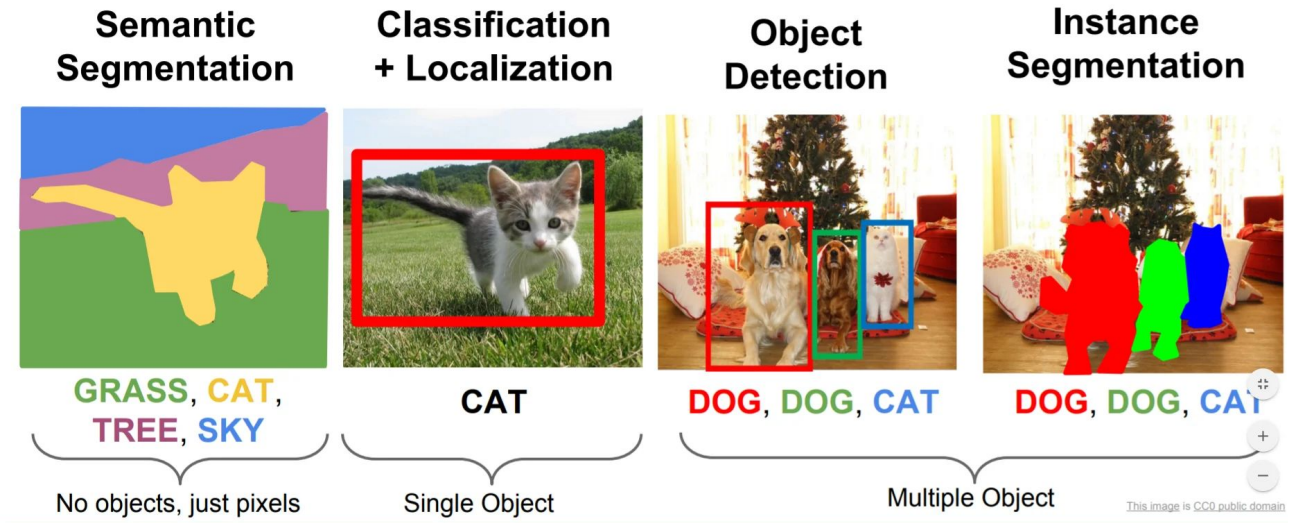


Segmentación de objetos

- Different type of tasks in image processing:
  - Object detection
  - Instance Segmentation
  - Semantic Segmentation



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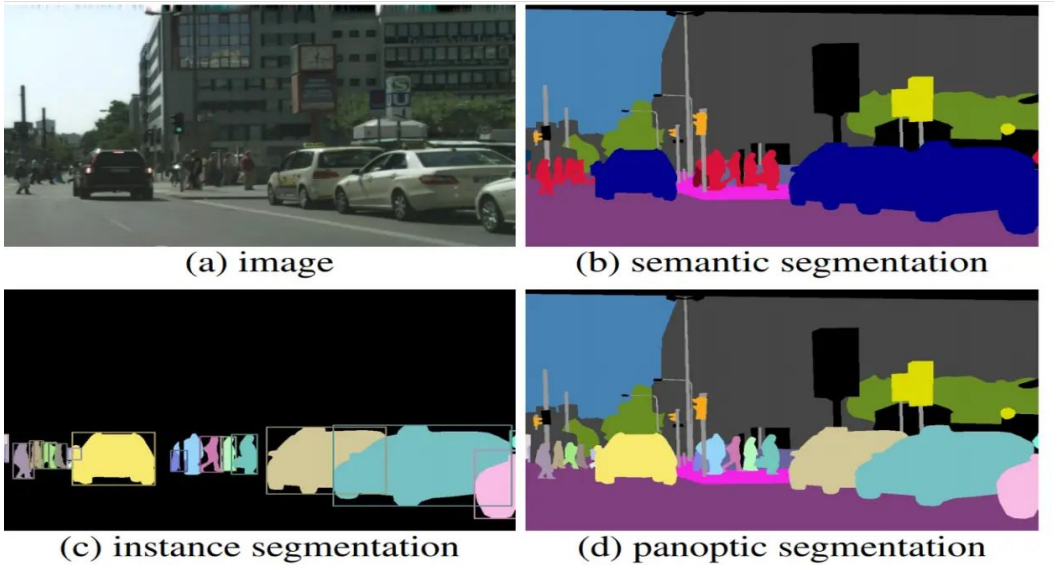

Segmentación de objetos

- Different type of tasks in image processing:
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  - Instance Segmentation
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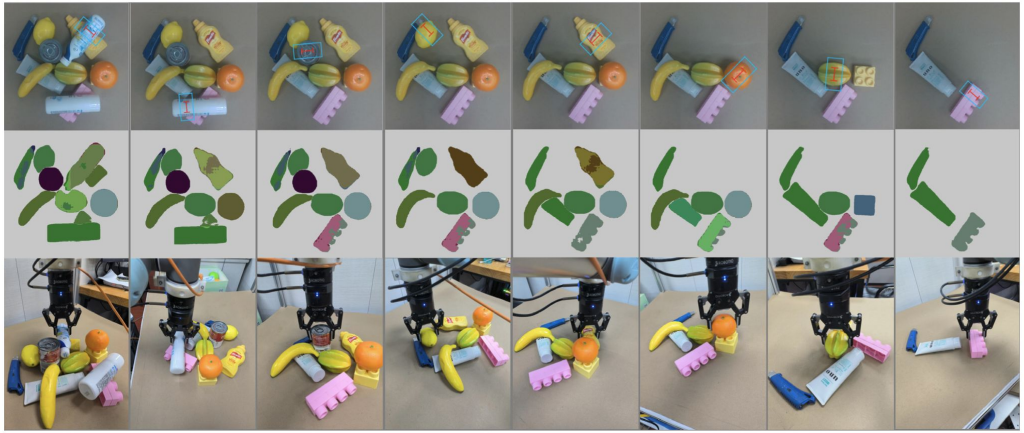
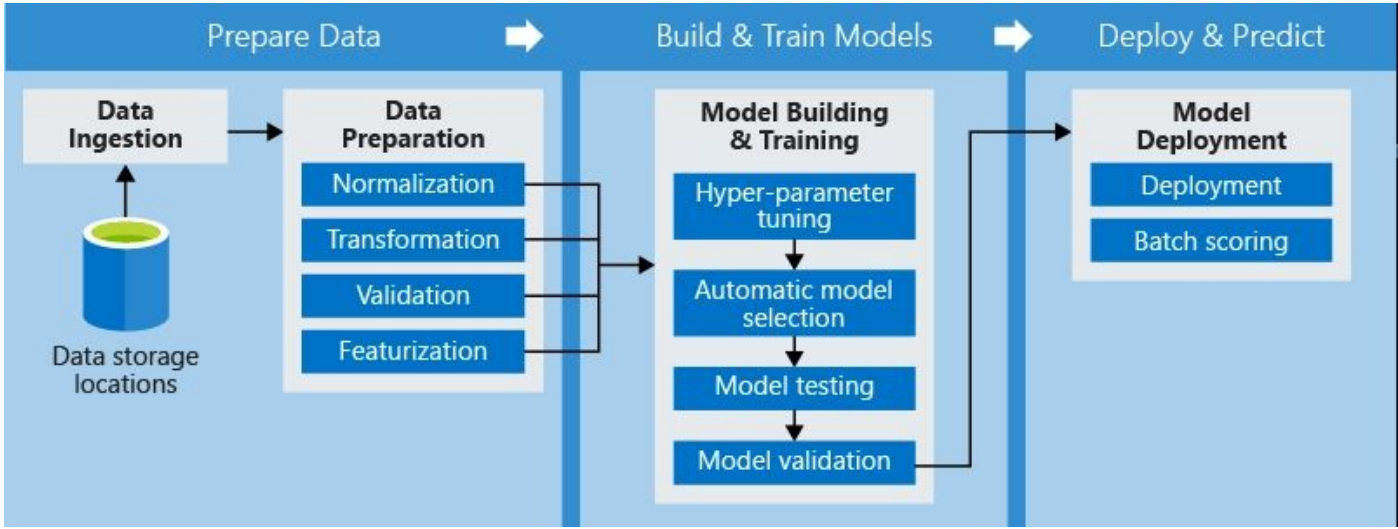
- Segmentation
  - Define in a pixel wise manner the class of instances or regiones
  - Detail information useful for several applications



Pre-training

- Pipeline of DNN models
  - Data collection
  - Training
  - Deployment



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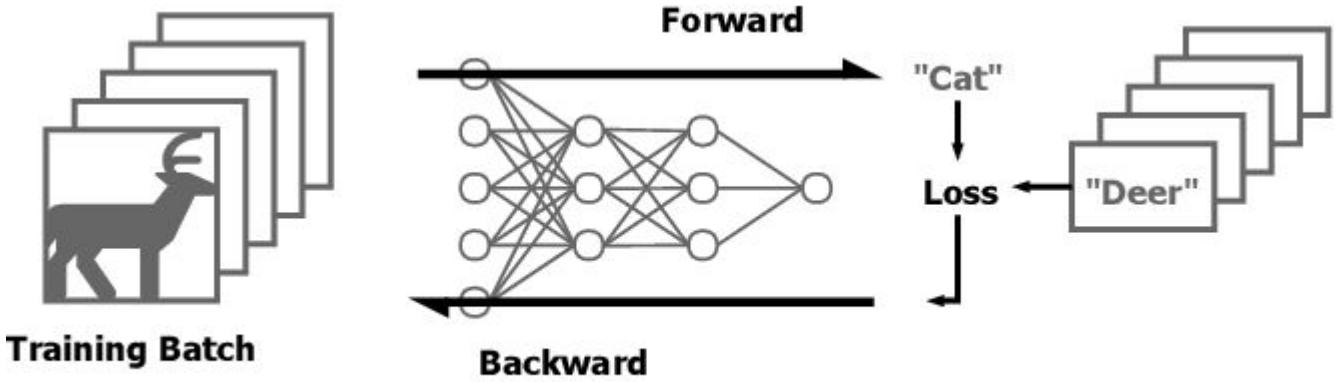
  - Iterative process of improvement



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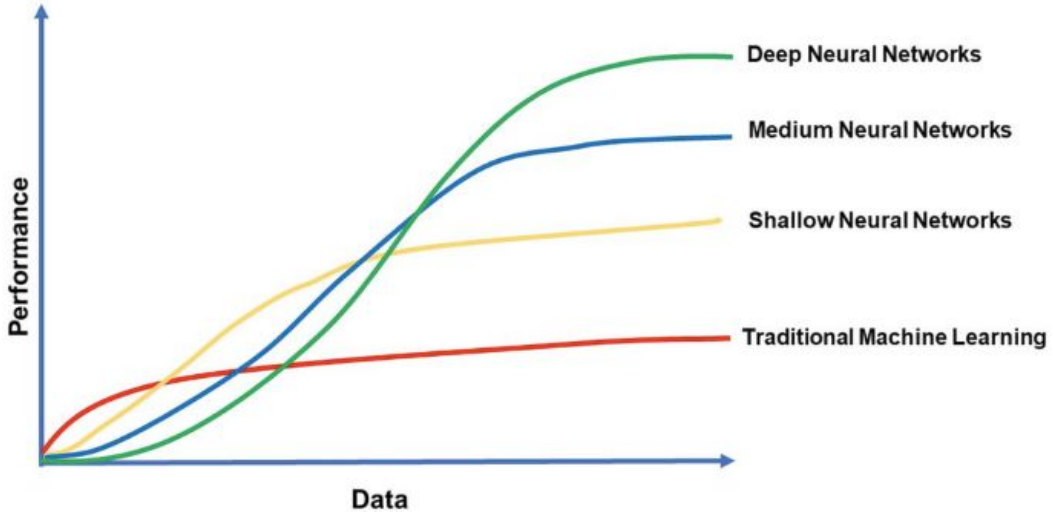

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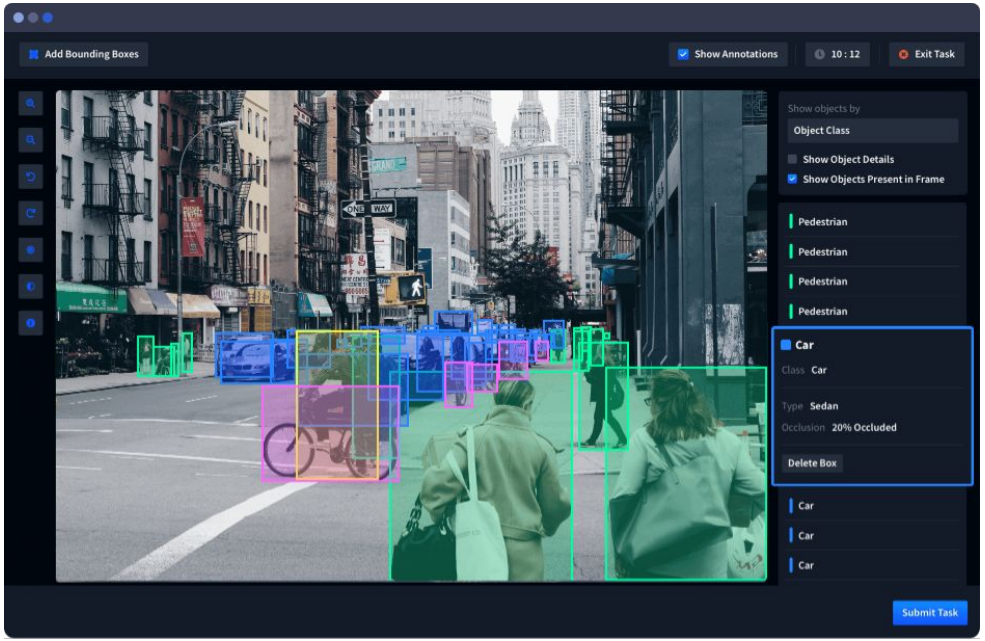

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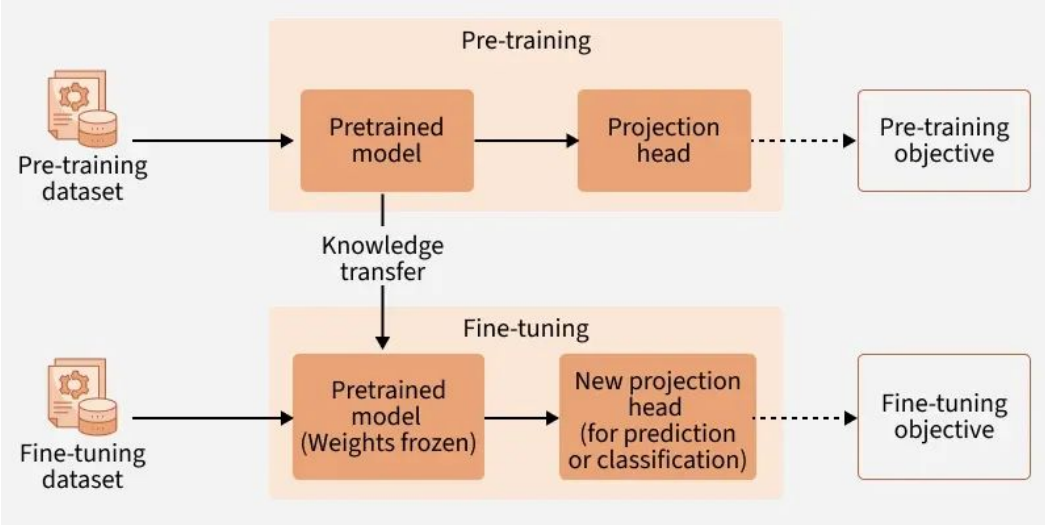

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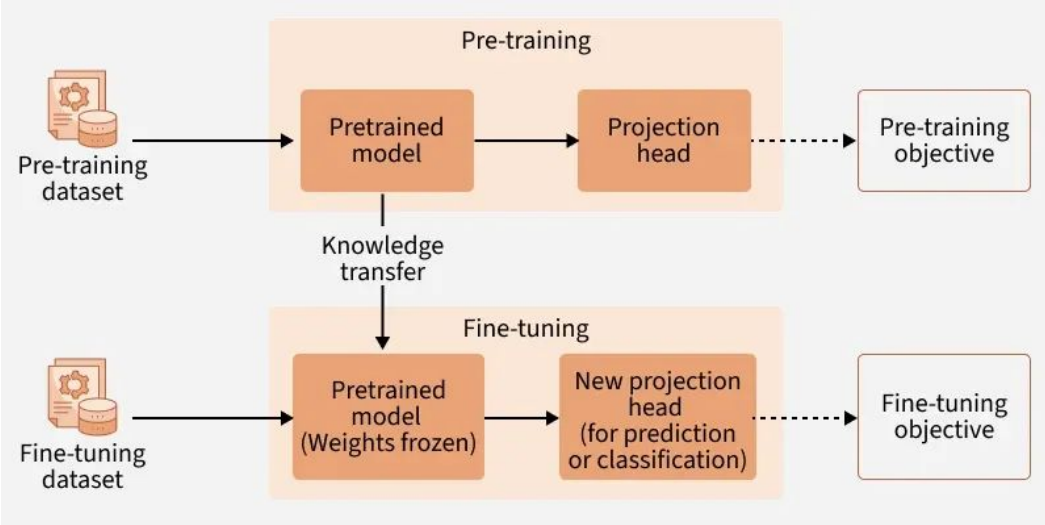
- Pre-training
  - Uso de modelos con pesos pre-entrenados para una tarea similar.
  - Entrenamiento secundario con una base de datos para una tarea específica
  - Diferencia de tamaño relevante entre bases de datos
    - ImageNet 1.000.000
    - Fine tuned dataset: 1.000



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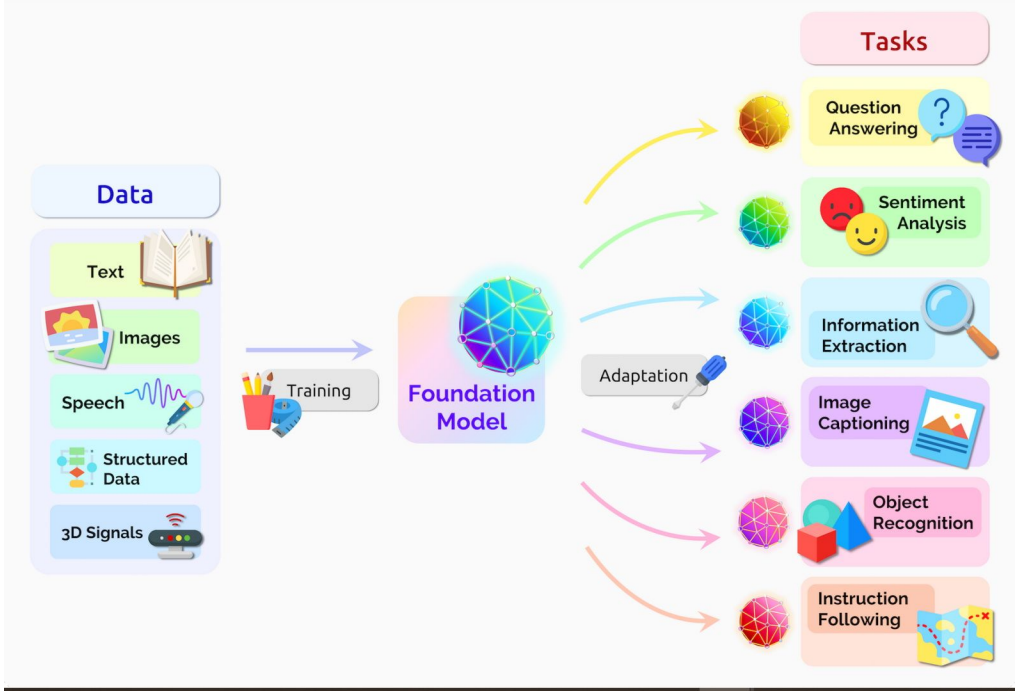

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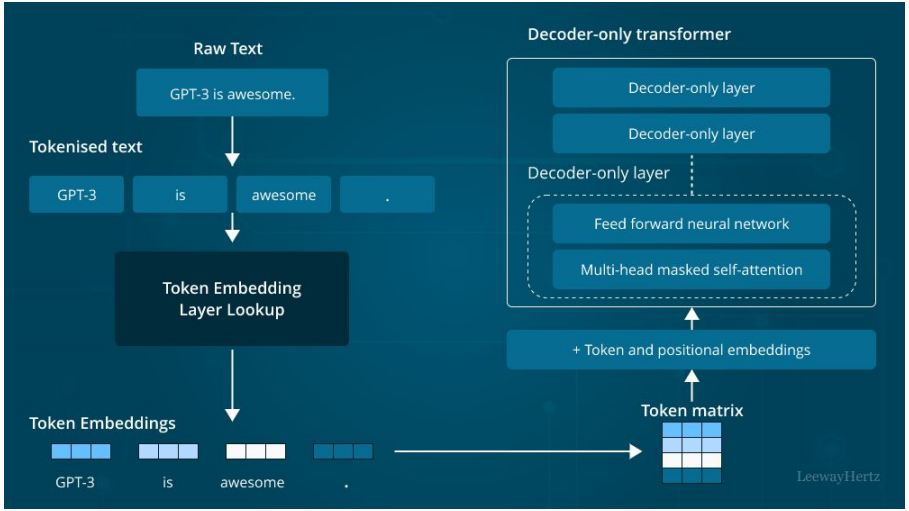

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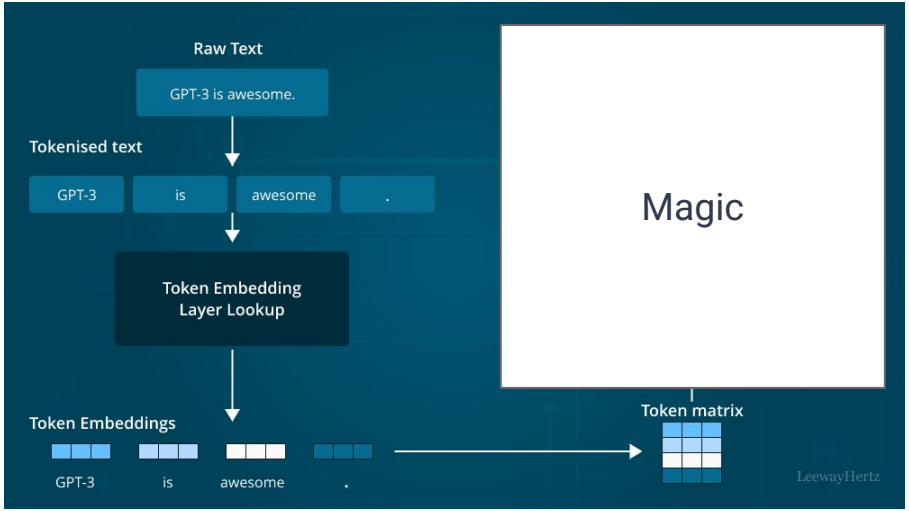

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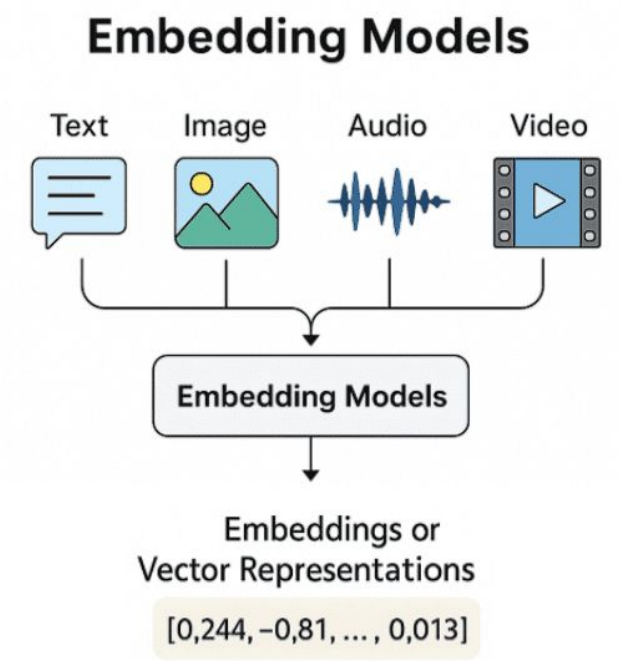

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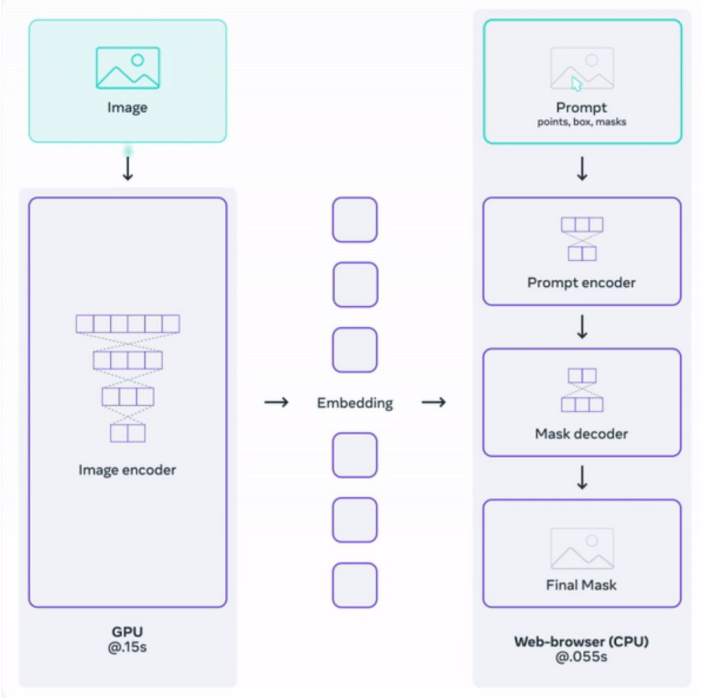
- Segment Anything model



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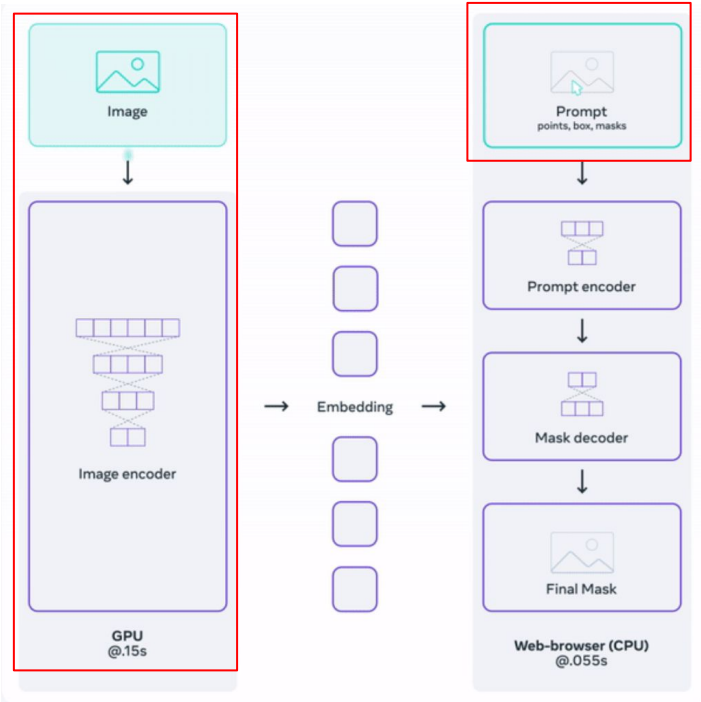

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  - Combina la información de una imagen y algun prompt
  - Prompts validos
    - Puntos
    - Bounding boxes
    - Segmentos
    - Texto
  - Foundation model entrenado con miles de millones de datos
- Paper
  - https://arxiv.org/pdf/2304.02643