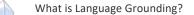


What is Language Grounding?

Language often refers to the world



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Grounding is tying language to non-linguistic things (e.g., databases, vision, sound)

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- Grounding is tying language to non-linguistic things (e.g., databases, vision, sound)
- Today we will talk about grounding into visual environments:





"Add the tomatoes and mix"

"Take me to the shop on the corner"







Grounding

· (Some) possible things to map language to:

• Low-level percepts: red means this set of RGB values, loud means lots of decibels on our microphone, soft means these properties on our haptic sensor...



Grounding (Some) possible things to map language to: • Low-level percepts: red means this set of RGB values, loud means lots of decibels on our microphone, soft means these properties on our haptic sensor... · High-level percepts: cat means this type of pattern

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Grounding

- High-level percepts: cat means this type of pattern
- Embodiment (effects on the world): go left means the robot turns left, speed up means increasing actuation



Grounding

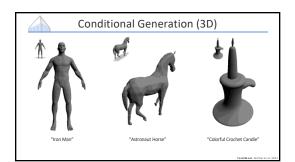
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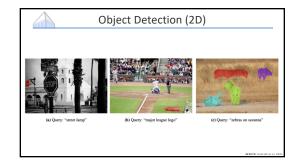
Grounding

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- For a nice taxonomy, related work, and examples, see Experience Grounds Language [Bisk et al. 2020]



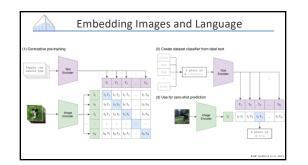


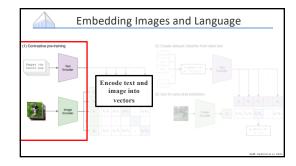


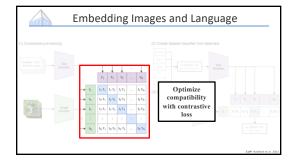


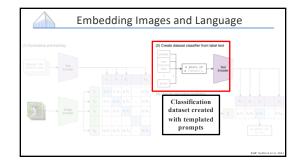


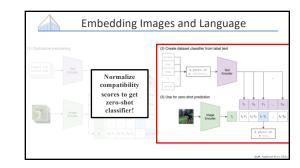


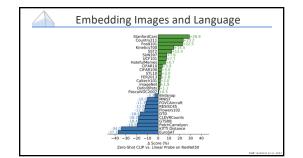




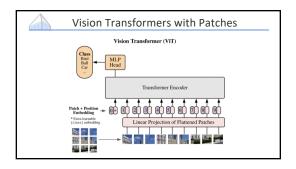


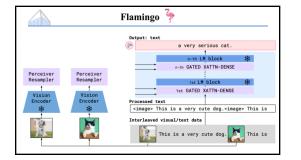












\wedge			Flamin	go 🦩			
	Input Prompt						P Completion
	This is a chinchilla. They are mainly found in Chile.		This is a shiba. They are very popular in Japan.	1	This is	\rightarrow	a flamingo. They are found in the Caribbean and South America.
H	What is the title of this painting? Answer: The Hallucinogenic Toreador.	2	Where is this painting displayed? Answer: Louvres Maseum, Paris.		What is the name of the city where this was painted? Answer:	$ \rightarrow $	Arles.
	Oatput: "Underground"	CONGRESS 🎆	Output: "Congress"		Output:	$ \rightarrow $	"Soulomes"
2+1	2+1=3	5+6	5+6=11	3×6		\rightarrow	3x6=18



