

INT D 461: Artificial Intelligence Everywhere Capstone

Elevator Pitch Presentation

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Lost in Translation: Idioms & AI

Can AI really understand idioms?



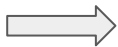
Why Idioms Matter?

- AI translators are good at literal meaning.
- They often fail with figurative/cultural expressions.
- This causes miscommunication in education, business, or daily life.



Gold Translation

Piece of cake



Piece of cake

OR

Something easily accomplished

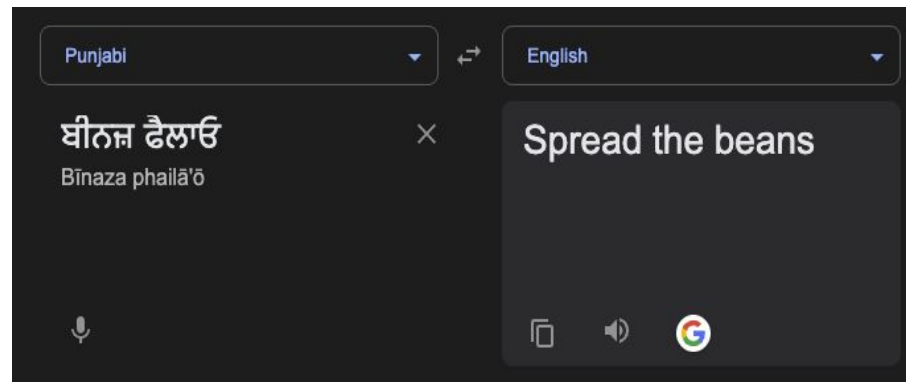
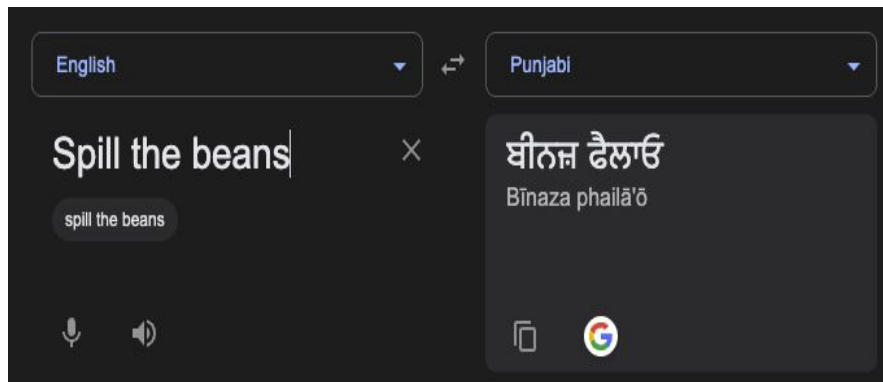
Example

spill the beans

idiom

to let secret information become known:

- *We'll all be there at 6 for the surprise party – now don't spill the beans!*



Where is the problem in real
world?

Live Translation

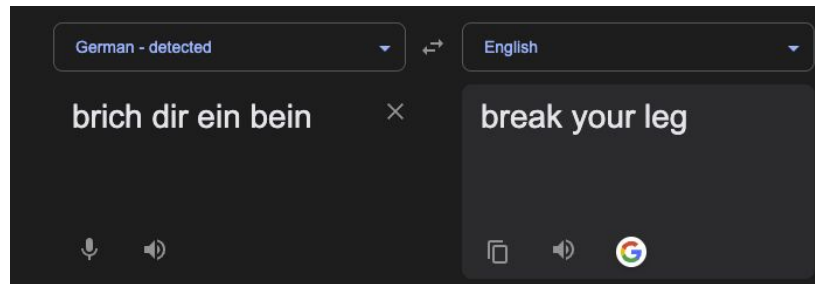


With Introduction of live
translate in our
phones,airpods this can be a
huge problem

Movie Dubbing of subtitles



Ever watched a movie and felt the subtitles just didn't match the scene?



What do we plan to do?

Our Idea

- Collect idioms in English + other languages.
- Test with free AI translators (Gemini, GPT, Hugging Face).
- Compare outputs to correct idiomatic translations.
- Create case study + demo script.

Idioms → AI models → Outputs → Compare

How We'll Compare Outputs

Turn idioms + translations into **sentence embeddings** (vectors).



Use **cosine similarity** to measure closeness to gold meaning.

Score ranges:

- Close to **1.0** → Meaning captured
- Close to **0** → Unrelated / wrong

Equation (simple):

$$\text{cosine similarity}(A,B) = \frac{A \cdot B}{||A|| \cdot ||B||}$$

Idiom	Gold Meaning	Model Output	Cosine Sim.	Result
"Kick the bucket"	To die	"Morir" (Spanish)	0.95	 Correct
		"Patear el cubo"	0.43	 Wrong

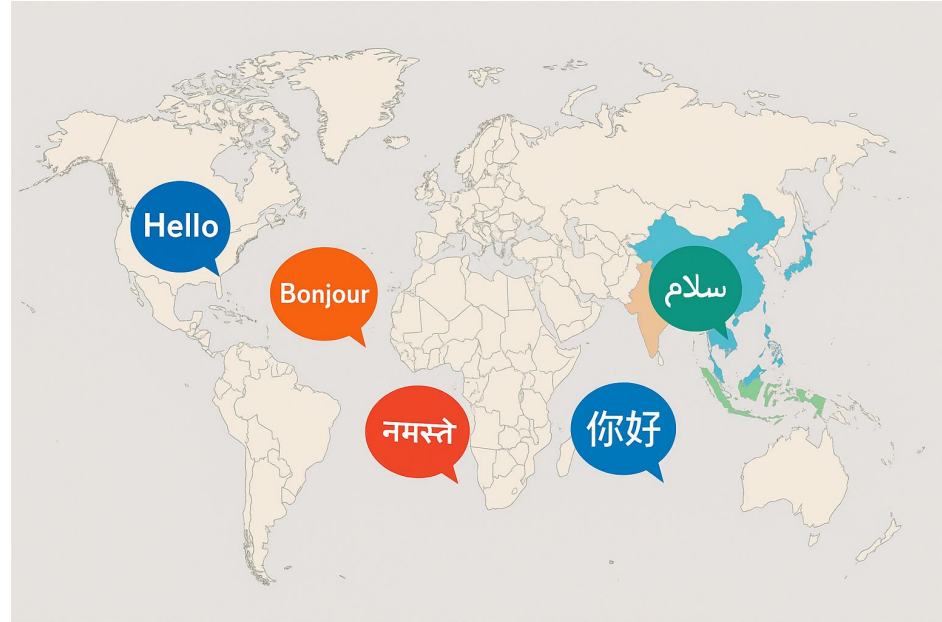
Roadblocks

- Data Collection Challenges
- Cultural context



Impact

- Shows limits of AI “understanding”
- Highlights cultural + ethical gaps
- Produces practical insights for real users



Questions/Feedback