# Outline

**With**

**Without**


**Aim 1**: Preference and metric learning from paired comparisons

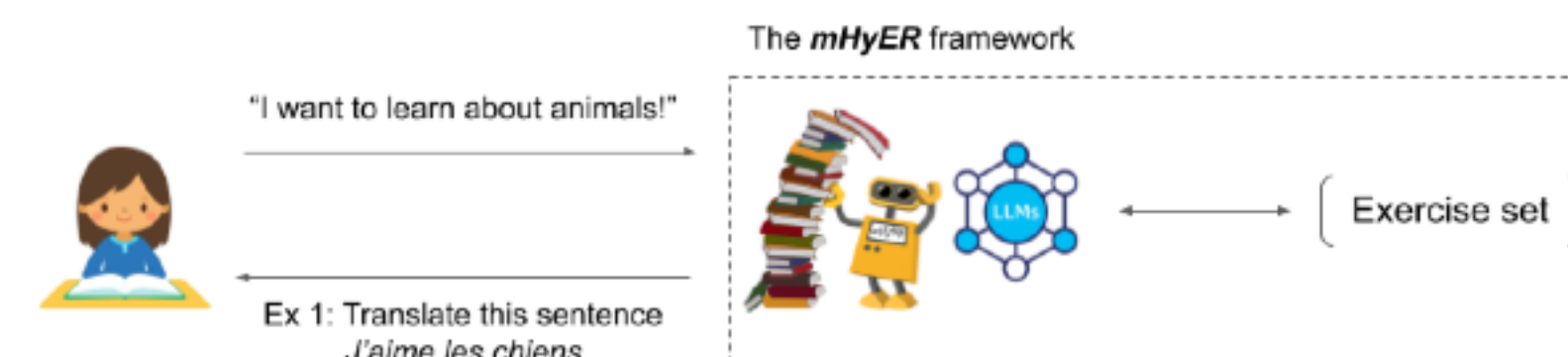
**Aim 3:** Zero-shot large language model augmented exercise retrieval
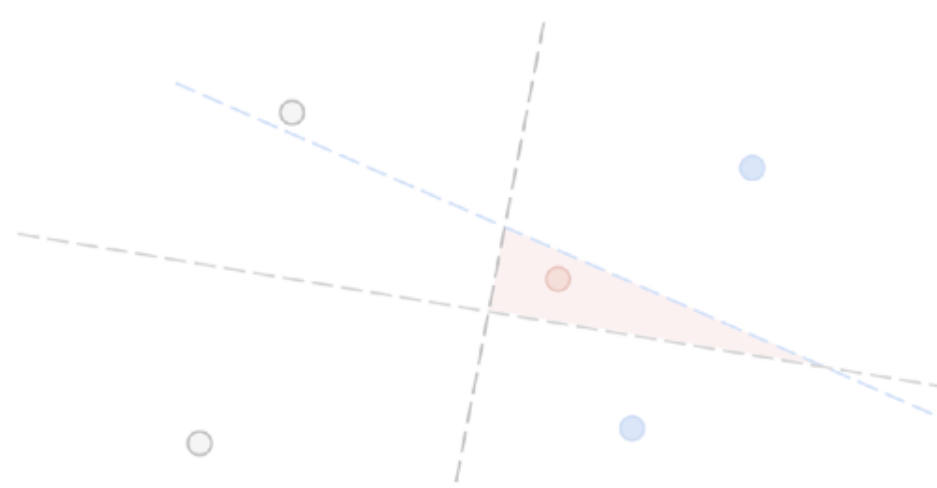

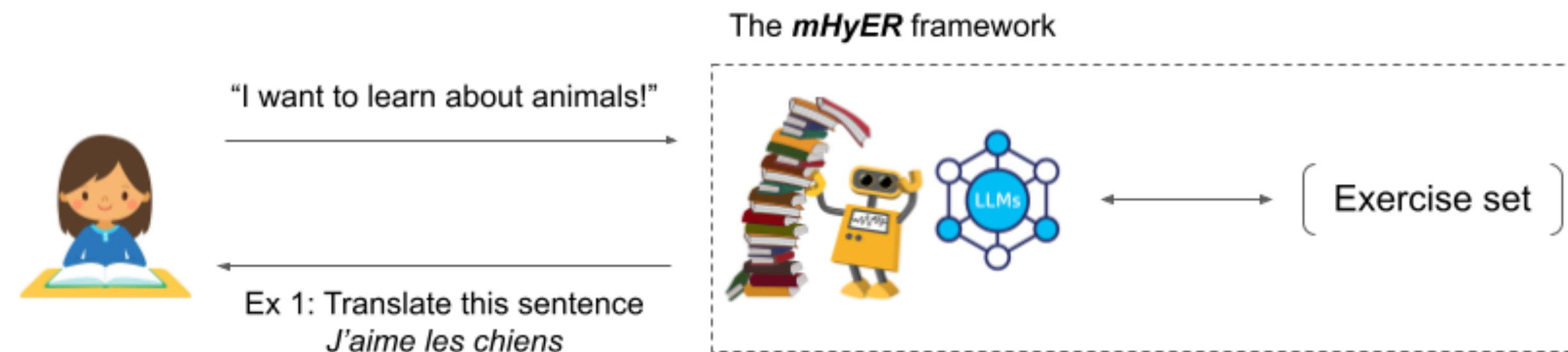**Aim 2**: Perceptual adjustment queries for metric learning
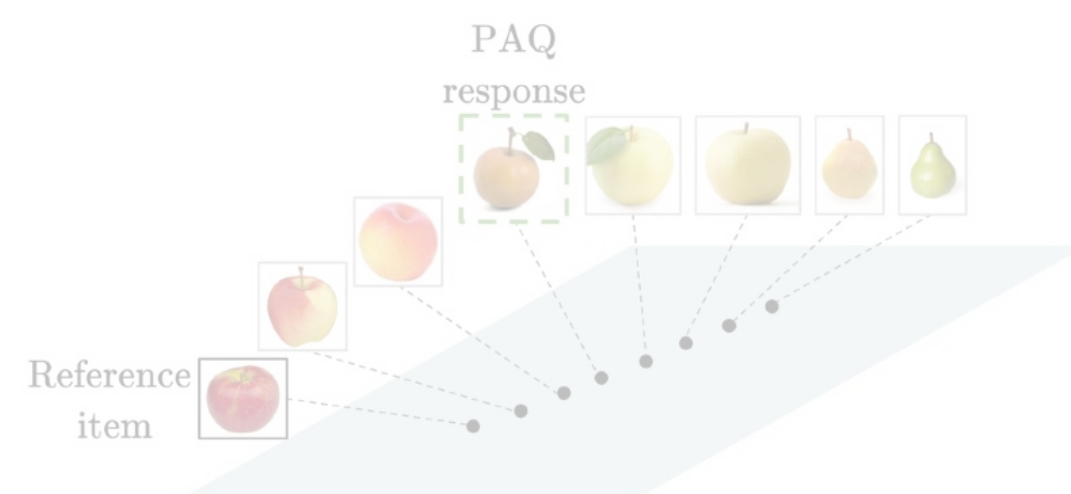

**Aim 4**: Synthetic dataset generation with no additional annotations
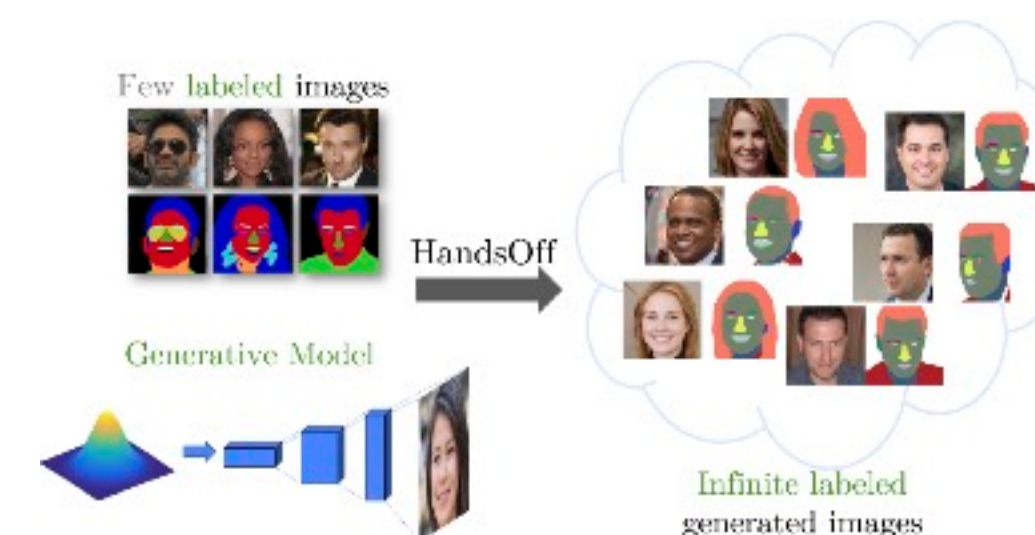
# Aim 3: Zero-shot large language model augmented exercise retrieval

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In collaboration with

**duolingo**