CRCV REU 2025

Project: Geo-HiPO

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07/30/2025

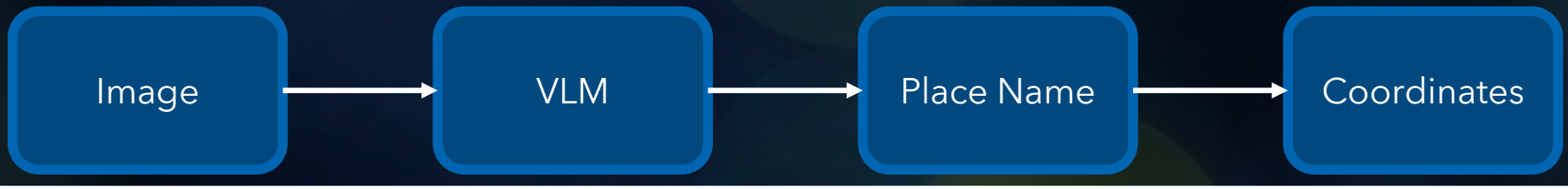
Project Overview

Motivation:

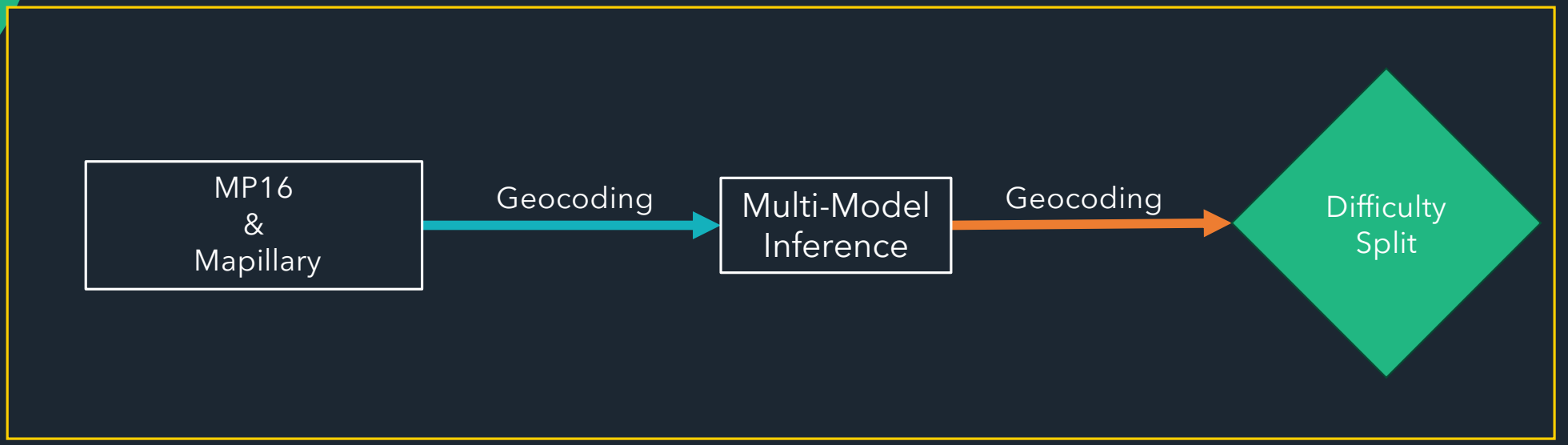
- Current Models:
  - Don’t generalize well.
  - Don’t reason spatially.
  - Don’t use a ground-based error.

Research Question:

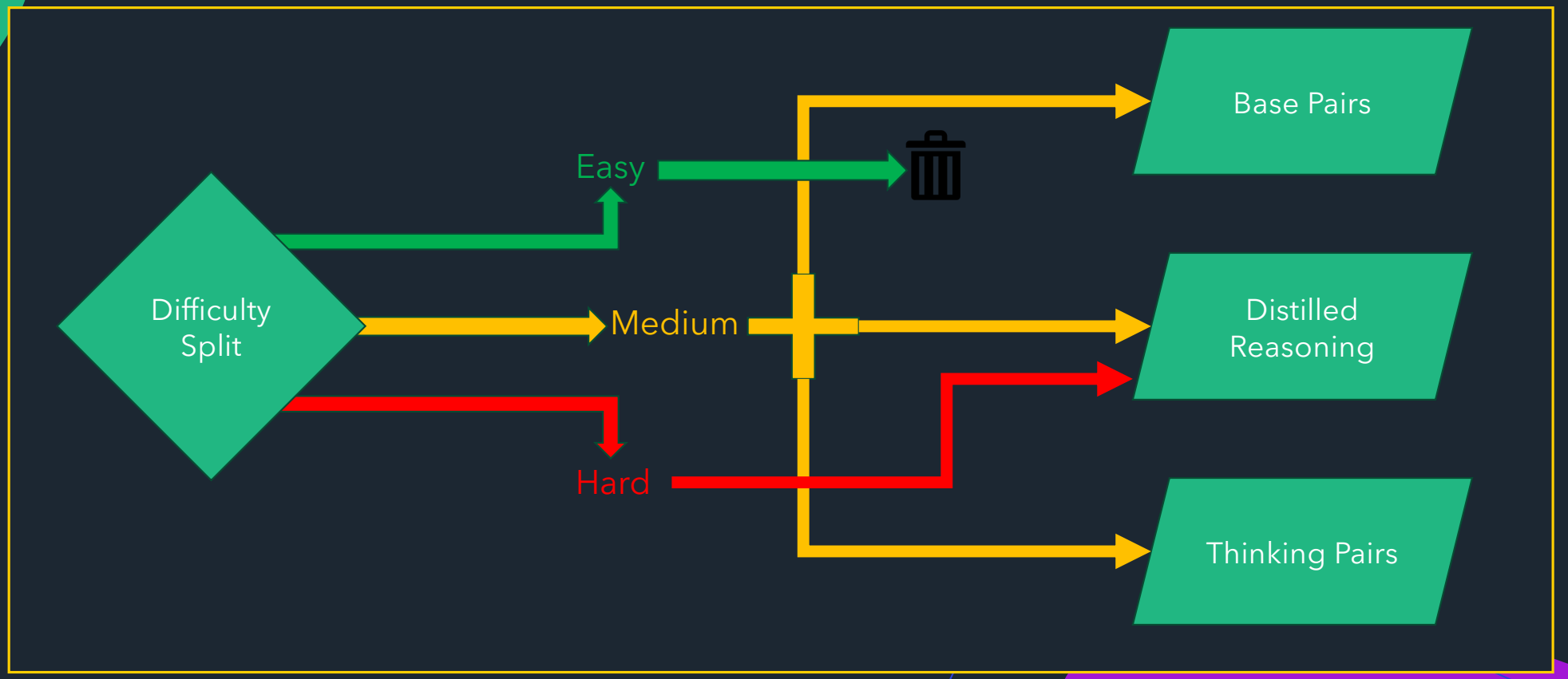
- Can we improve geolocation accuracy by **teaching vision-language models to reason location like humans**?



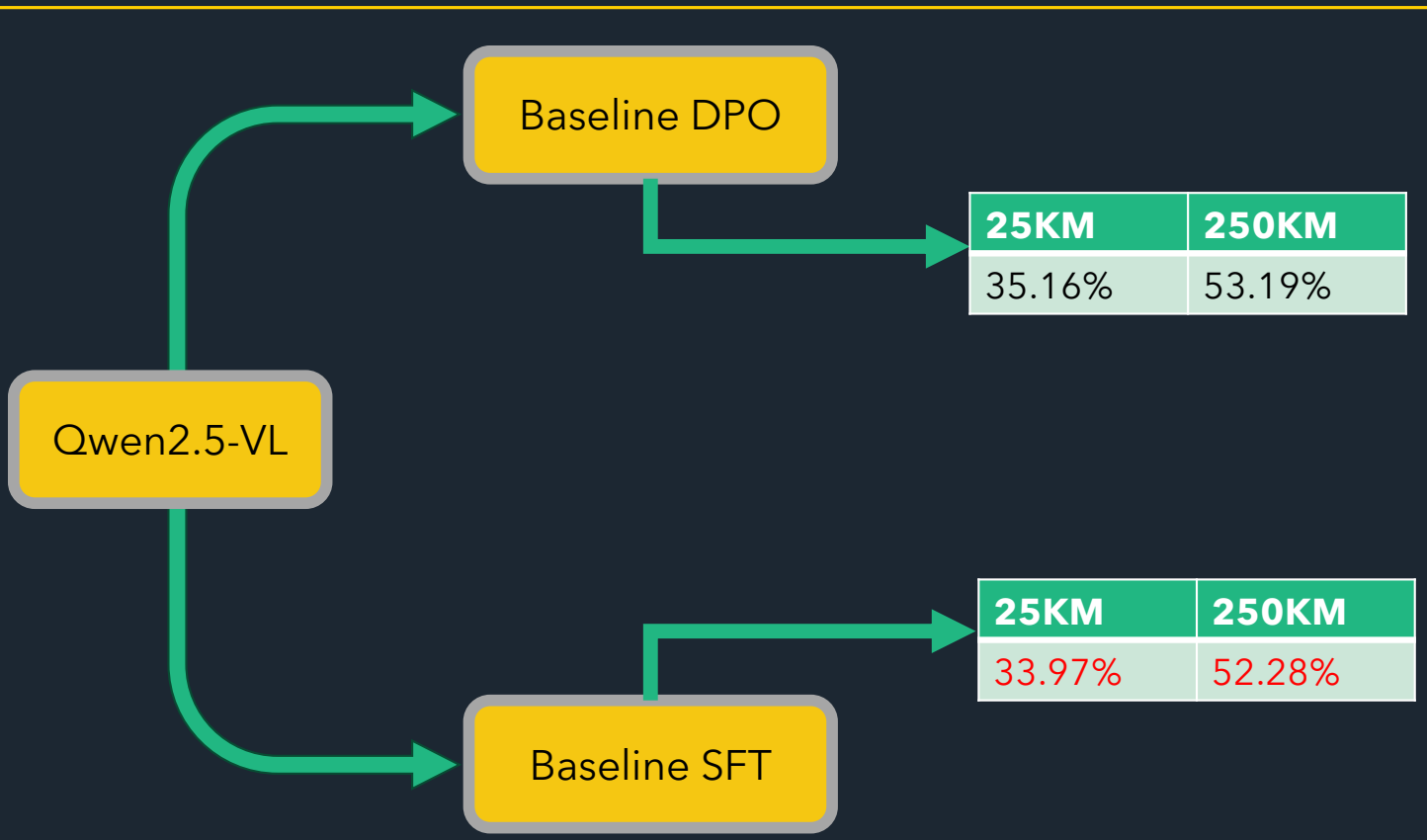
Data Evolution



Data Evolution



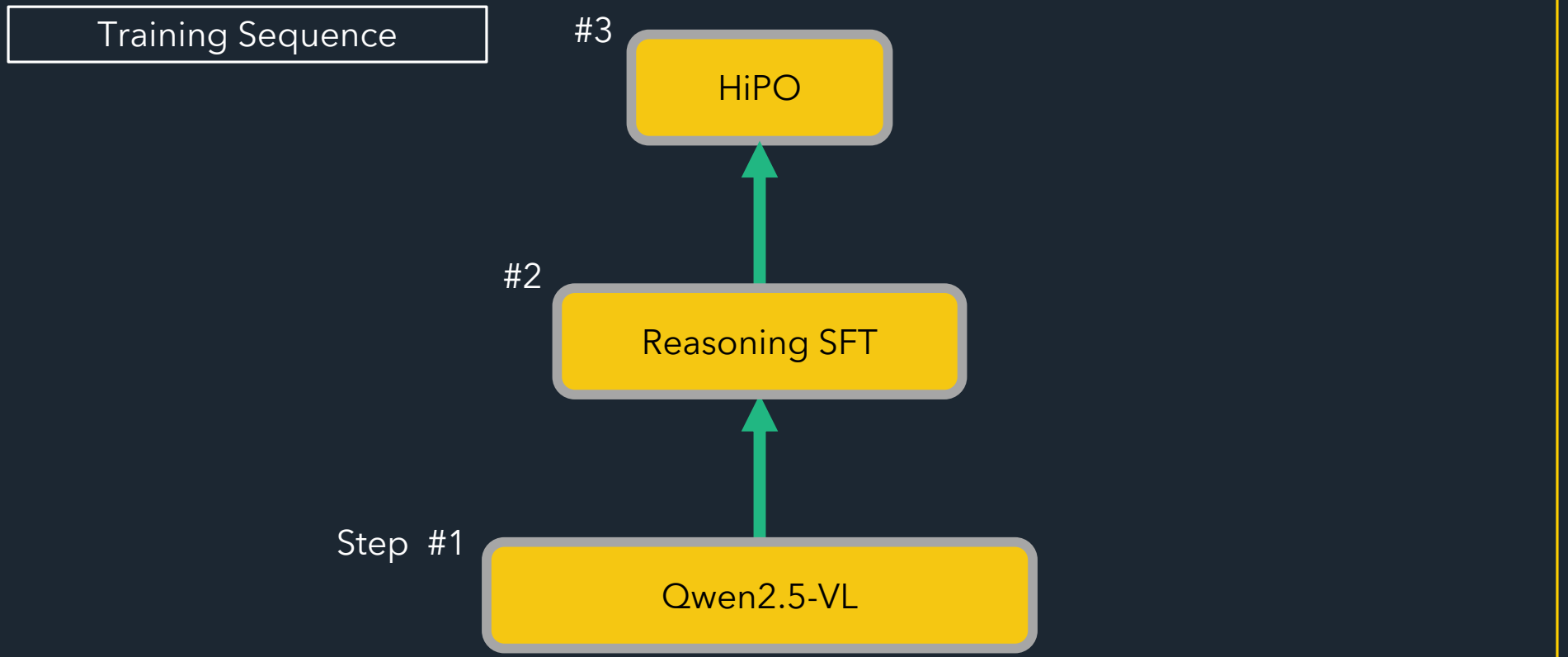
Model Evolution



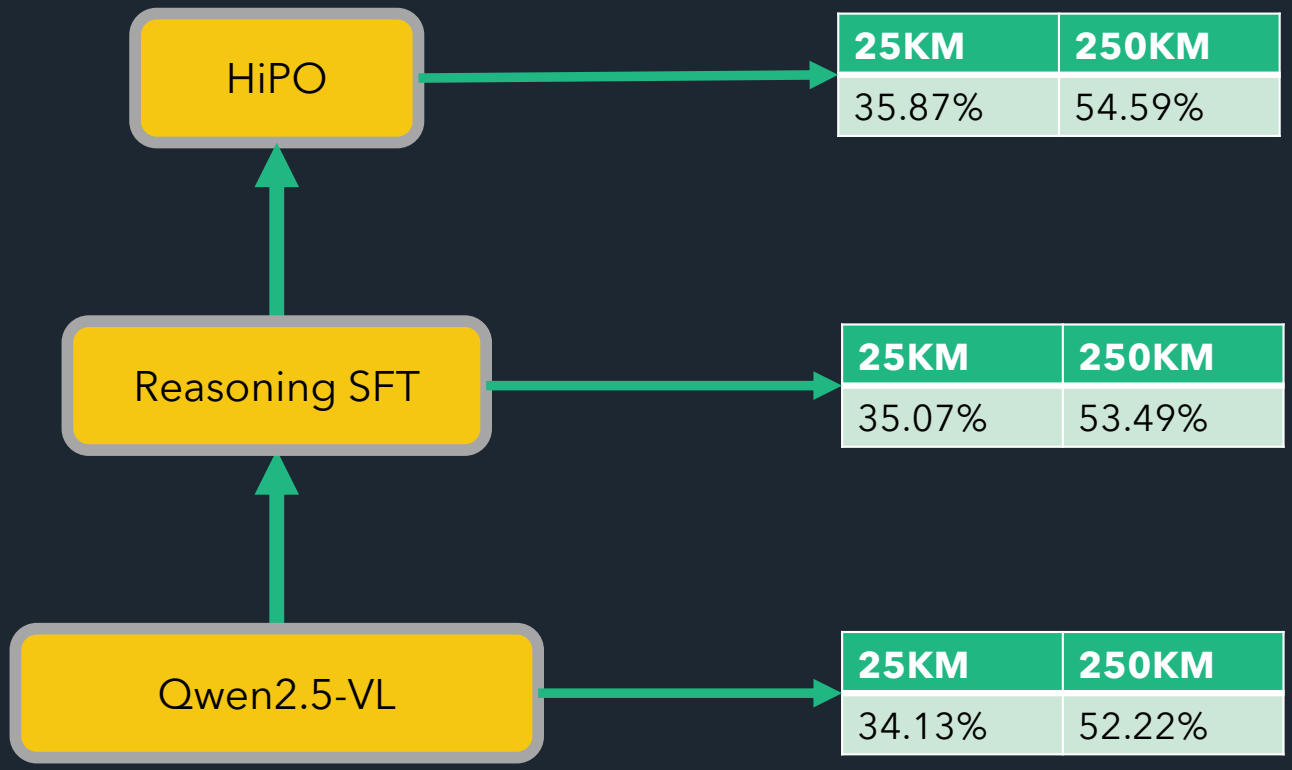
25KM	250KM
35.16%	53.19%

25KM	250KM
33.97%	52.28%

Model Evolution – Final Model



Model Evolution – Final Model



25KM	250KM
35.87%	54.59%

25KM	250KM
35.07%	53.49%

25KM	250KM
34.13%	52.22%

Thank You!

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Any Questions?



David Rivard

07/30/2025