

Focus on Background: Exploring SAM's Potential in Few-shot Medical Image Segmentation with Background-centric Prompting

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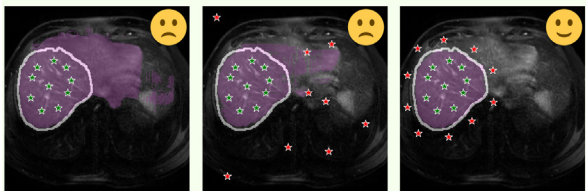
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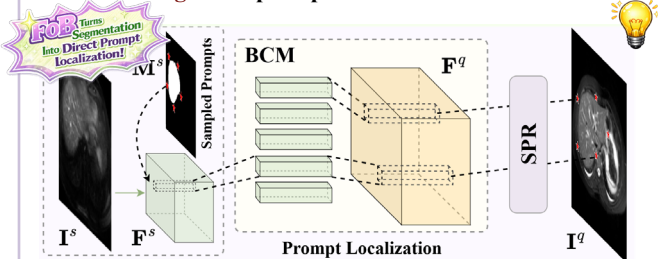
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Introduction

- Motivation:** To leverage SAM's promptable and category-agnostic segmentation capabilities to boost FSMIS

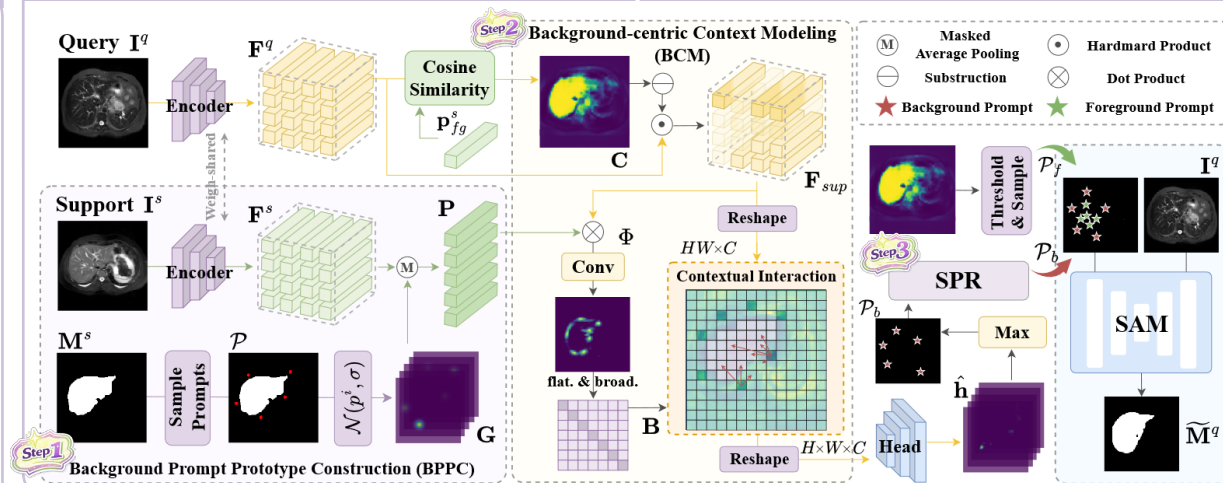


- Problem:** SAM frequently **over-segments** medical Images when **background** prompts are absent or unreliable.

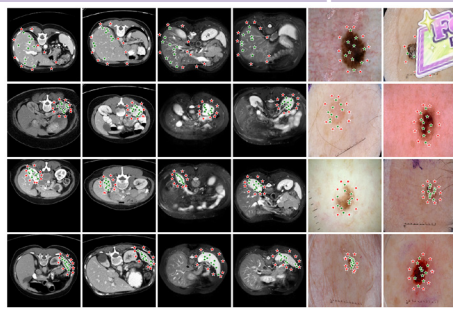


- Reformulated segmentation to **prompt localization**.
- Proposed a **background-centric** prompt generator FoB.
- Tailored learning approach for medical images to model **contextual and structural** information across prompts.

Method: FoB Prompt Generator

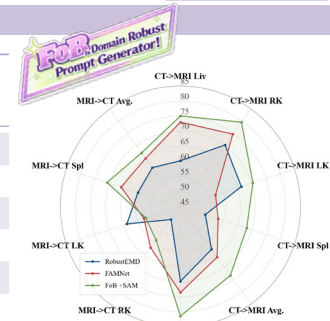


Generated Prompts



Qualitative Results

Datasets/Setting	ALP Net	Proto SAM	AM-SAM	Ours
Abd-MRI Setting I	78.84	81.56	81.40	84.46
Abd-MRI Setting II	73.02	77.83	75.56	80.46
Abd-CT Setting I	73.35	75.50	86.19	86.21
Abd-CT Setting II	63.02	73.45	84.04	84.80
Skin-DS Setting I	62.51	72.75	-	76.62
Skin-DS Setting II	52.01	72.03	-	75.56



Resources



Paper



Code



Video