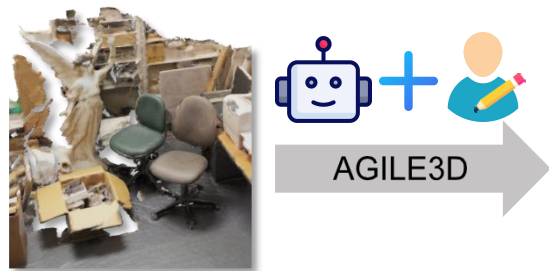


# AGILE3D : Attention Guided Interactive Multi-object 3D Segmentation

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## 1. Task

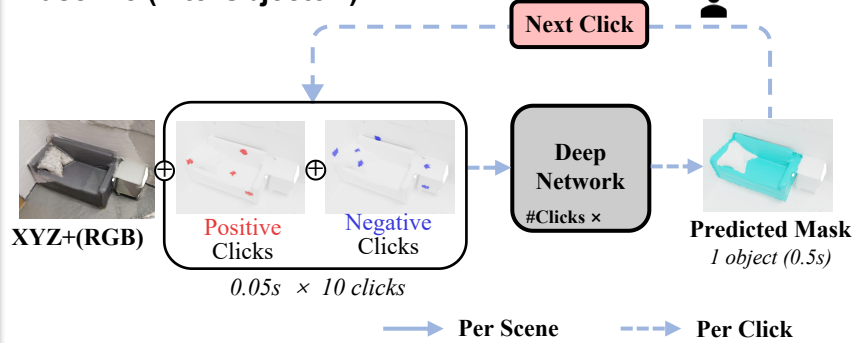


**Goal:** 3D object segmentation with **interactive clicks**.

**Applications:** 3D data annotation, robotics, AR/VR.

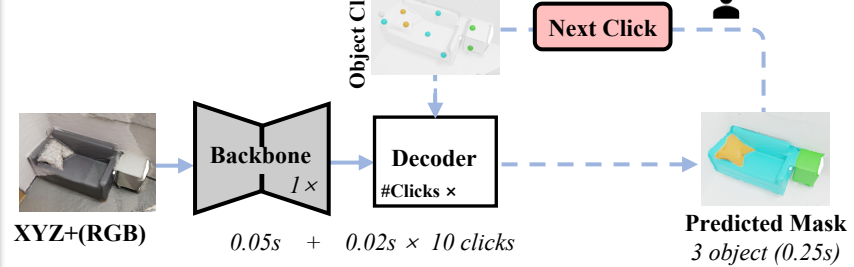
## 2. Motivation

**Baseline (InterObject3D):**



- Limited to **single-object** segmentation
- **Disregards** contextual relationships
- Computationally **inefficient**

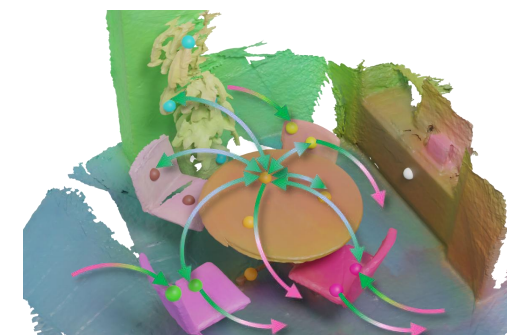
**Our AGILE3D:**



- Click sharing ✓
- Holistic reasoning ✓
- Faster inference ✓

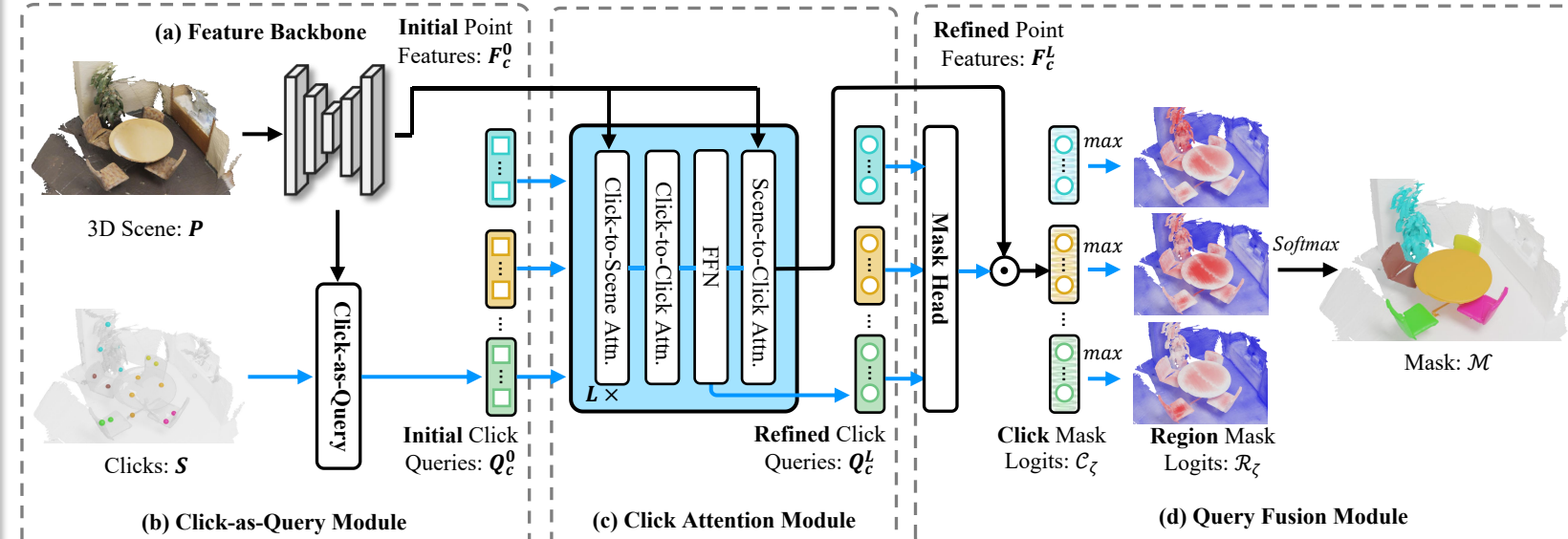
## 3. Core Idea

Encode clicks as **spatial-temporal queries** and enable interaction between click queries themselves and scene features.

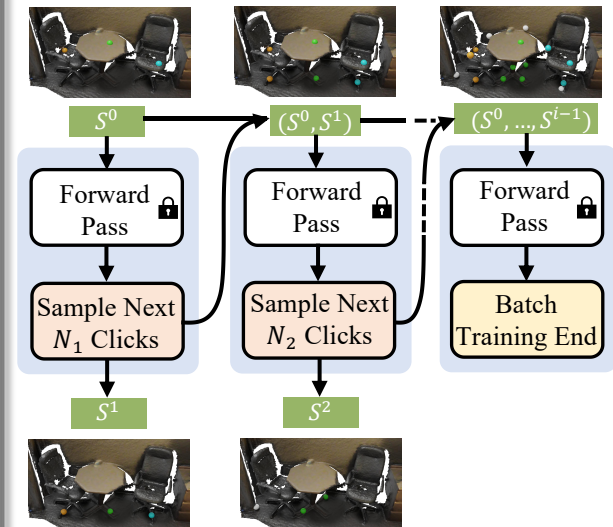


Click-to-click attn.  
Click-to-scene attn.    Scene-to-click attn.

## 4. Model



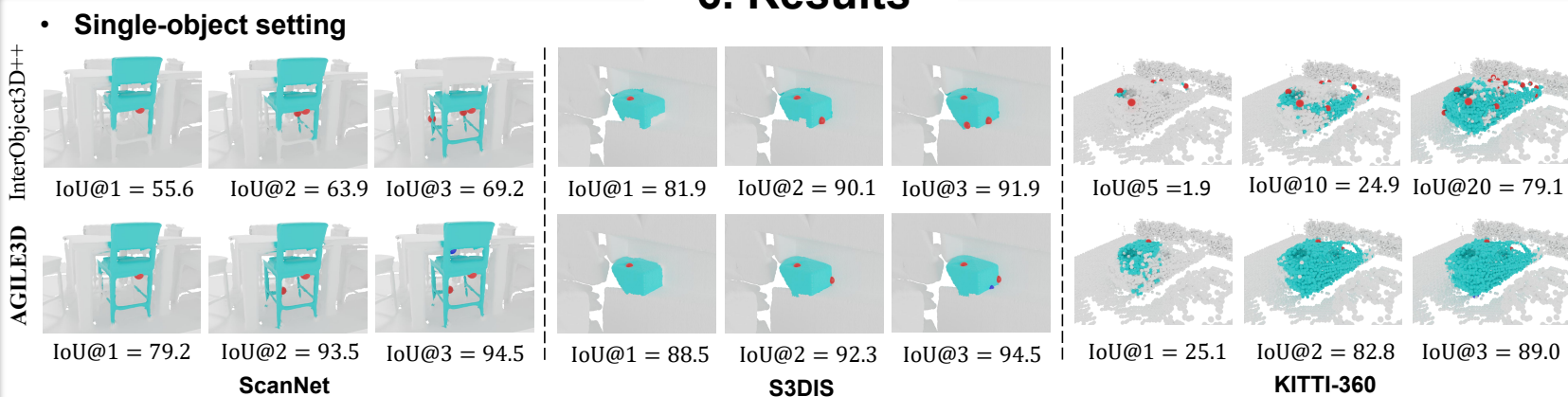
## 5. Training



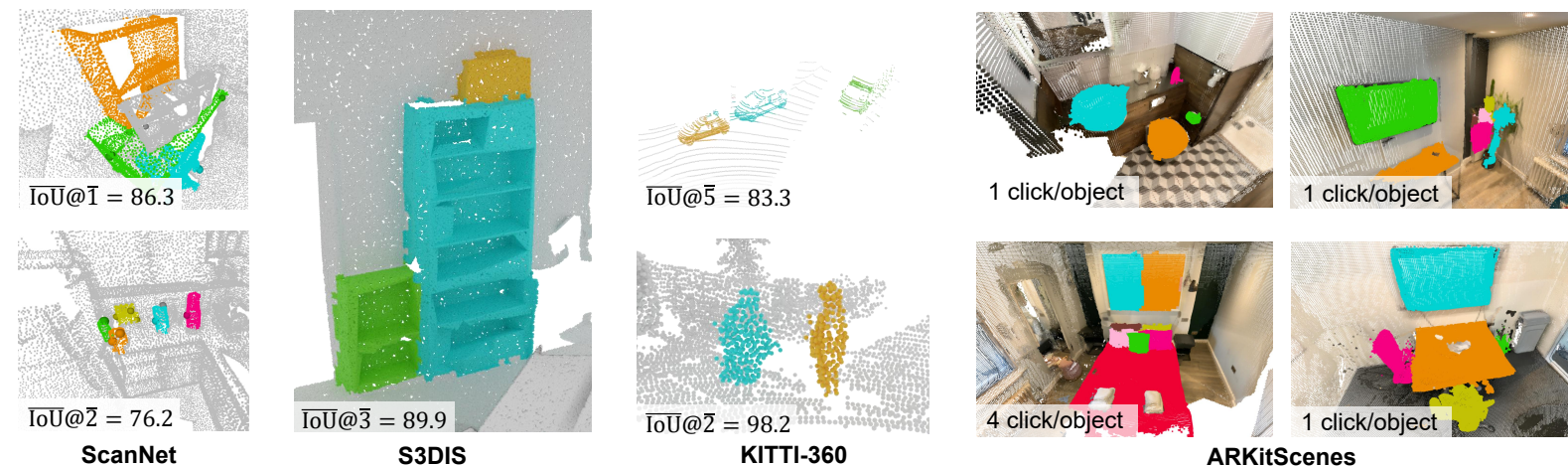
**Multi-object iterative training**

$$\mathcal{L} = (\lambda_{CE} \mathcal{L}_{CE} + \lambda_{Dice} \mathcal{L}_{Dice})$$

## 6. Results



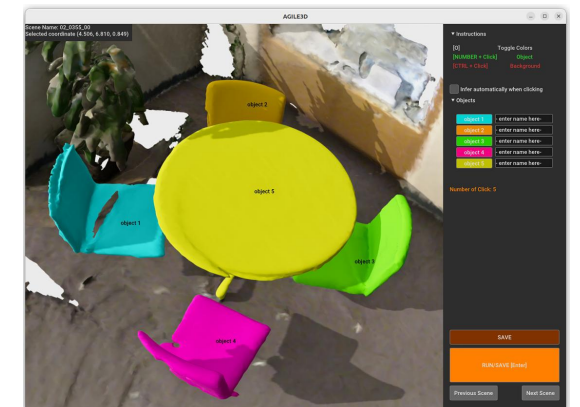
**Multi-object setting**



## 7. Demo



Try your own scans!



**User interface**