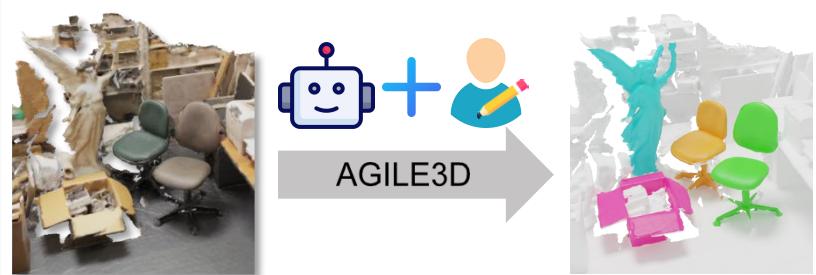


# AGILE3D : Attention Guided Interactive Multi-object 3D Segmentation

Yuanwen Yue, Sabarinath Mahadevan, Jonas Schult, Francis Engelmann, Bastian Leibe, Konrad Schindler, Theodora Kontogianni

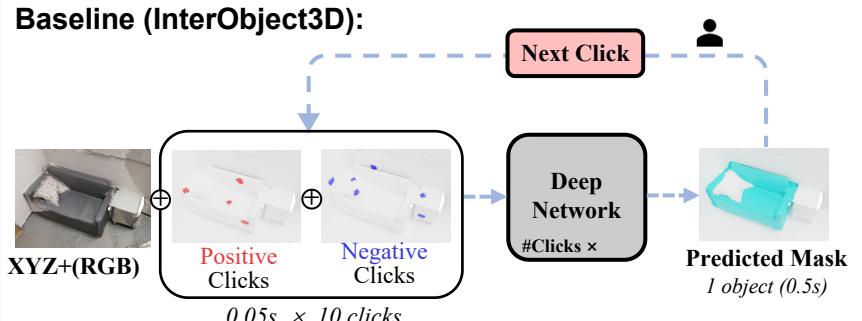
## 1. Task



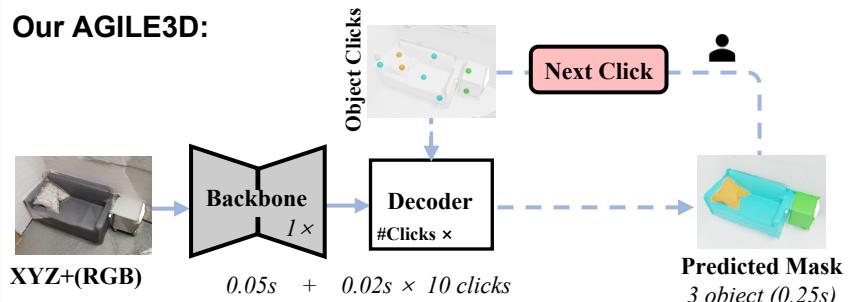
**Goal:** 3D object segmentation with **interactive clicks**.

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

## 2. Motivation



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



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

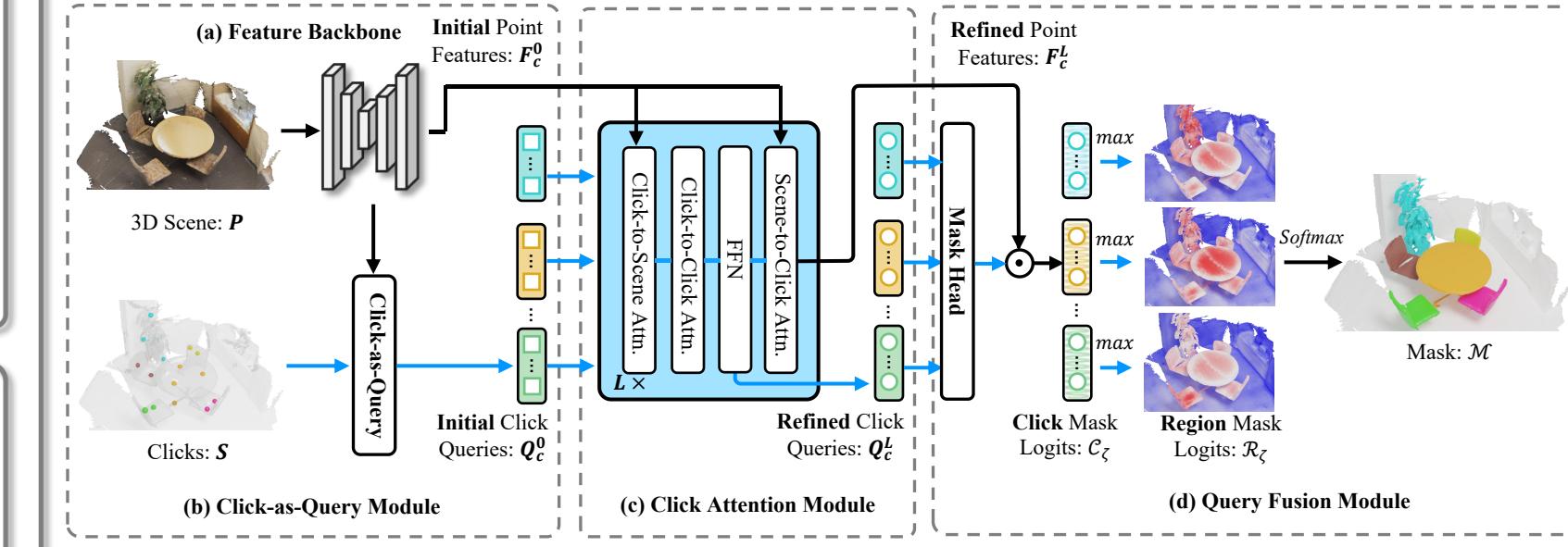
## 3. Core Idea

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

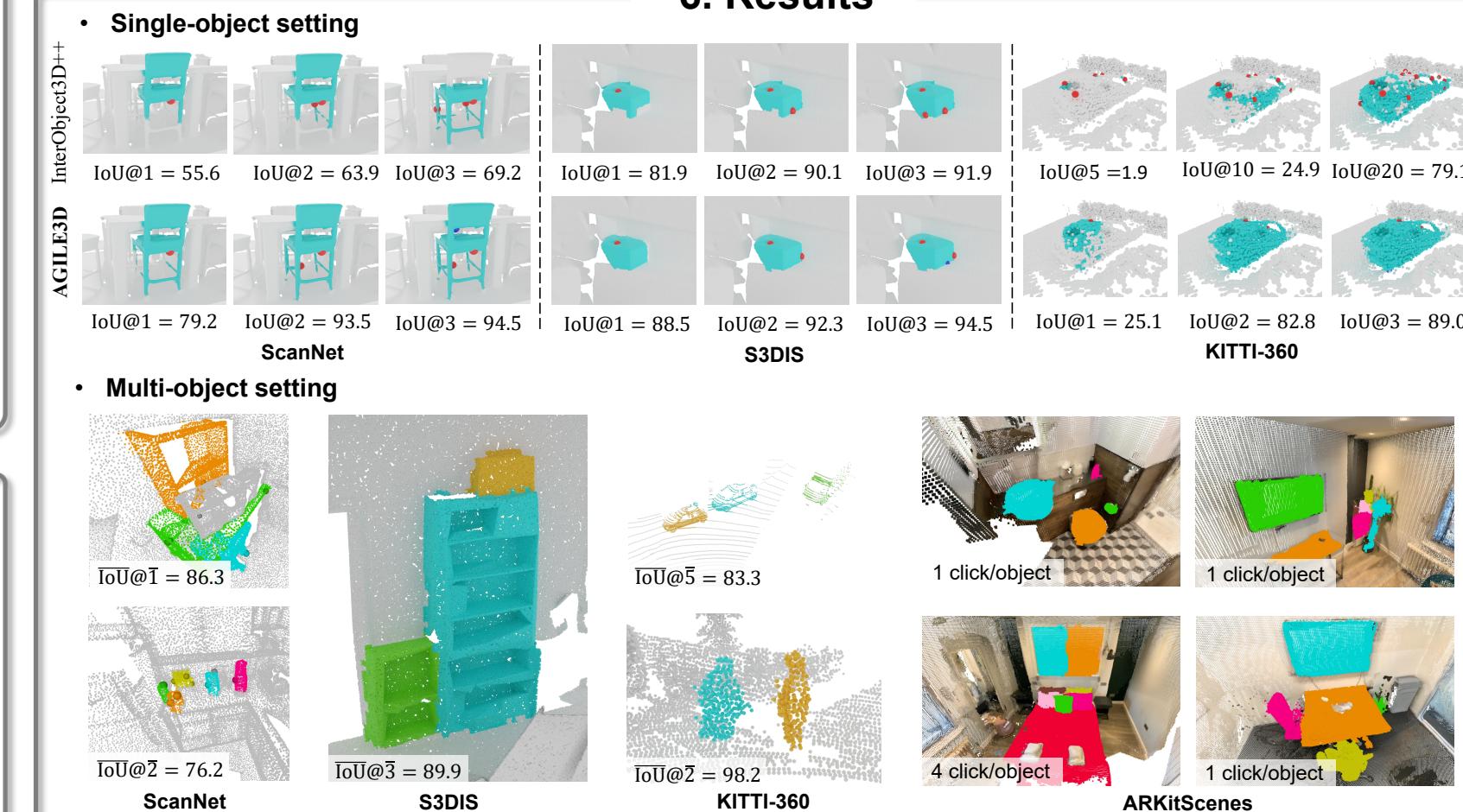


Click-to-click attn.  
Click-to-scene attn.  
Scene-to-click attn.

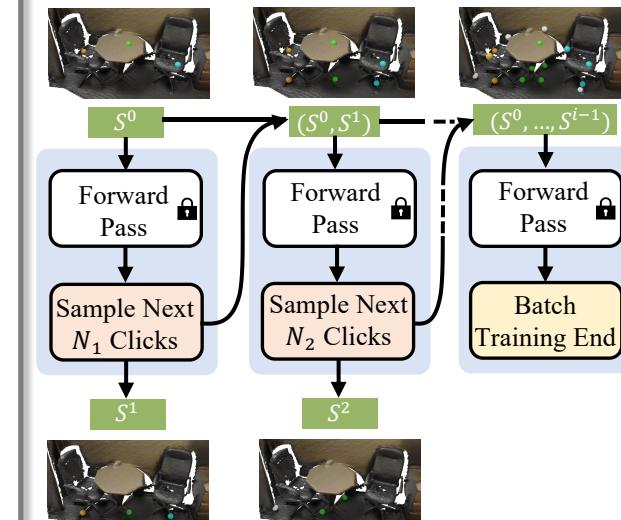
## 4. Model



## 6. Results



## 5. Training



## Multi-object iterative training

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

## 7. Demo

