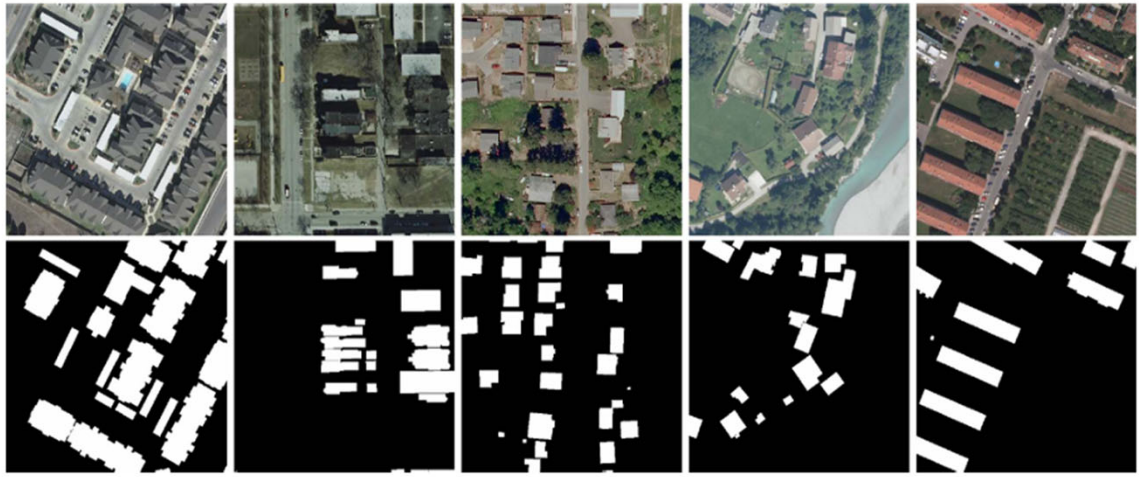
6 Interactive Remote Sensing Image Segmentation

➢ Motivation:

- **High Cost:** Manual annotation of remote sensing images is expensive and time-consuming.
- Existing methods exhibit deficiencies in edge feature extraction, utilization of interactive information, and performance in complex scenes.

➢ Objectives:

- Enhance interactive segmentation performance to reduce manual annotation workload.



➢ Limitations of Existing Methods:

- Poor edge feature extraction.
- Insufficient utilization of user interaction.
- Weak performance in complex scenes.

➢ Our Solution:

1. Proposed a dual-branch network architecture, comprising a Global Feature Extraction Branch and an Edge Information Enhancement Branch.
2. We adopted a collaborative feedback mechanism to refine local features and mitigate the dilution of interactive information.

DBCF-Net: Enhanced Interactive Remote Sensing Image Segmentation with a Dual-Branch Network and Collaborative Feedback Integration," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

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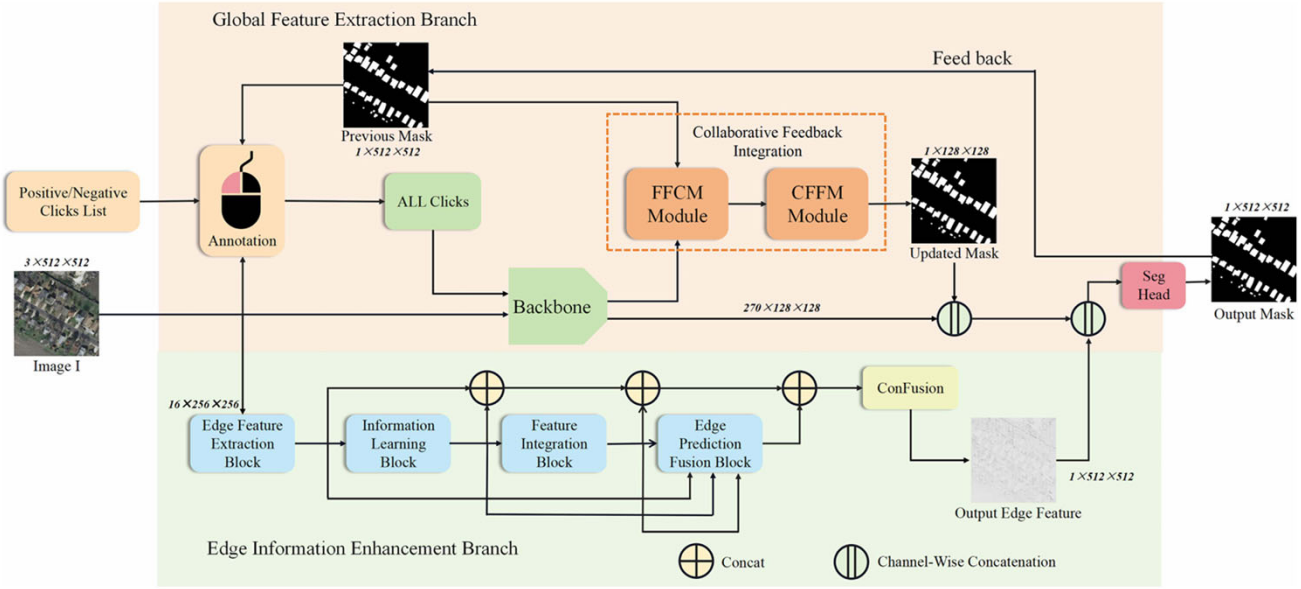
➢ Innovations:

A. Dual-Branch Architecture:

- Global Feature Extraction Branch
- Edge Information Enhancement Branch

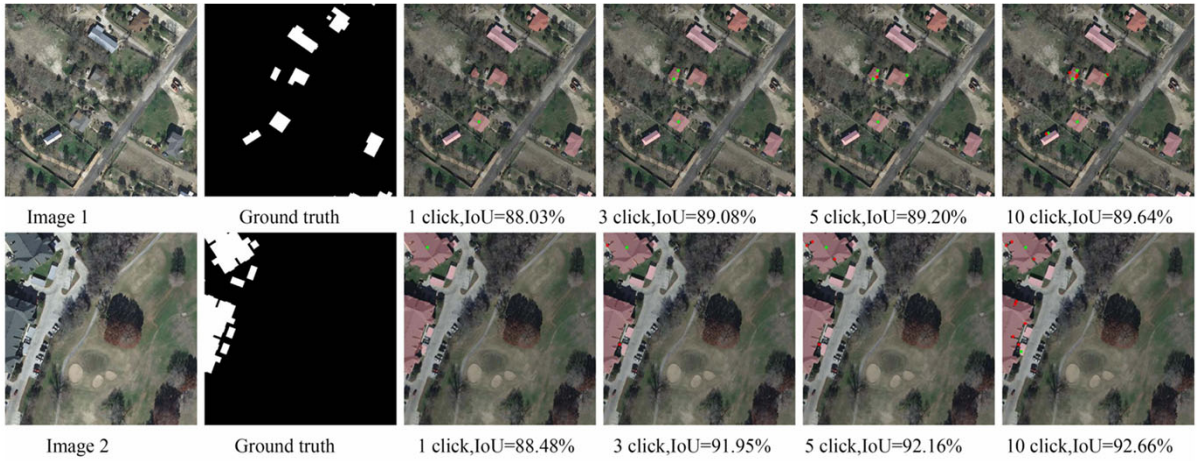
B. Collaborative Feedback and Integration Mechanism:

- Focus-and-Fixate Correction Module
- Collaborative Feedback Fusion Module



➢ Experimental Results:

- **Performance:** On three benchmark datasets, our DBCF-Net outperformed existing methods like RITM on the Number of Clicks metric. It achieved a 90% IoU with an average of only 2.51 clicks.
- **Ablation Studies:** The results of ablation experiments confirmed the contributions of both network branches and the feedback mechanism.



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