

AngioSeg:

Automated AI-Driven Angiosome Segmentation for Personalized Y-90 Radioembolization

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ADDRESSED NEED

Current Y-90 dosimetry models inaccurately estimate the arterial territory that actually receives microspheres. The angiosome, the volume perfused by the catheterized artery, is the true unit of delivery, and angiosome dose correlates directly with microsphere uptake. Manual angiosome segmentation, however, is time-intensive and operator-dependent, limiting adoption of personalized dose planning despite evidence that it improves outcomes in liver directed therapy.

This technology addresses these challenges by providing an automated AI module that performs precise angiosome segmentation from standard CBCT imaging, enabling rapid calculation of patient-specific angiosome volumes for optimized Y-90 dose planning.

KEY BENEFITS

- **Automated precision** eliminating manual segmentation variability and reducing procedure time.
- **Validated AI performance** providing consistent, reproducible angiosome identification across cases.
- **Seamless workflow integration** operating within existing CBCT post-processing platforms.
- **Enhanced patient outcomes** enabling personalized dosimetry that improves tumor response rates.

TECHNOLOGY FEATURES

- **AI-driven segmentation** automatically identifying treatment angiosomes from CBCT contrast data.
- **Multi-region analysis** differentiating tumor, parenchyma, and angiosome boundaries simultaneously.
- **Quantitative uptake ratios** calculating patient-specific contrast enhancement differentials.
- **Platform compatibility** designed for integration with major CBCT imaging systems.

SUMMARY

AngioSeg is a validated AI module that automates angiosome segmentation for personalized Y-90 radioembolization dosimetry. The system processes cone beam CT contrast data acquired during standard mapping procedures to automatically identify liver territories perfused by treated arteries, enabling rapid calculation of patient-specific tumor-to-parenchyma uptake ratios without additional imaging burden or workflow disruption.

The technology serves interventional radiologists seeking precision radioembolization capabilities, medical device manufacturers developing CBCT platforms, and Y-90 microsphere companies aiming to differentiate their treatment planning offerings. AngioSeg addresses the critical bottleneck of manual segmentation that has limited widespread adoption of personalized dosimetry despite compelling clinical evidence of improved outcomes.

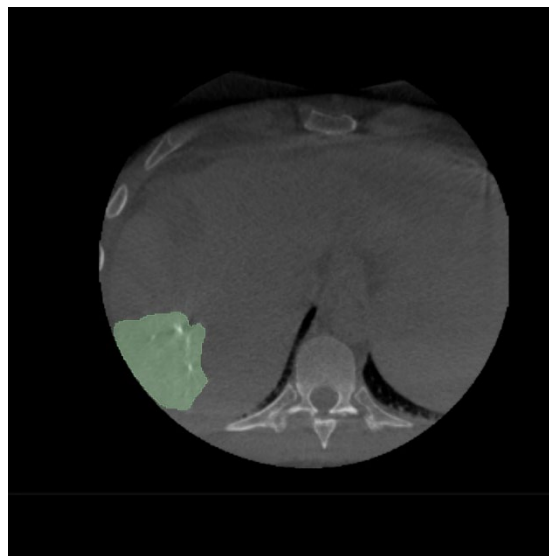


Figure 1: Axial CBCT slice with predicted angiosome segmentation mask (green) shown as a color-coded translucent overlay.

OTHER DETAILS

Intellectual Property Status:
Patent Application Filed

Stage of Development:
Validated AI module; ready for clinical integration and commercial licensing partnerships.

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