Streamlined Carotid Artery Calcification Labeling for CTA Scans

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We require vast amounts of manually labeled calcifications to train advanced machine learning classifiers for carotid artery plaque detection and phenotyping high-risk calcifications for ischemic stroke patients. We developed ***CACTAS-Tool*, a web-based software** for streamlined calcium labeling with minimal user interaction.

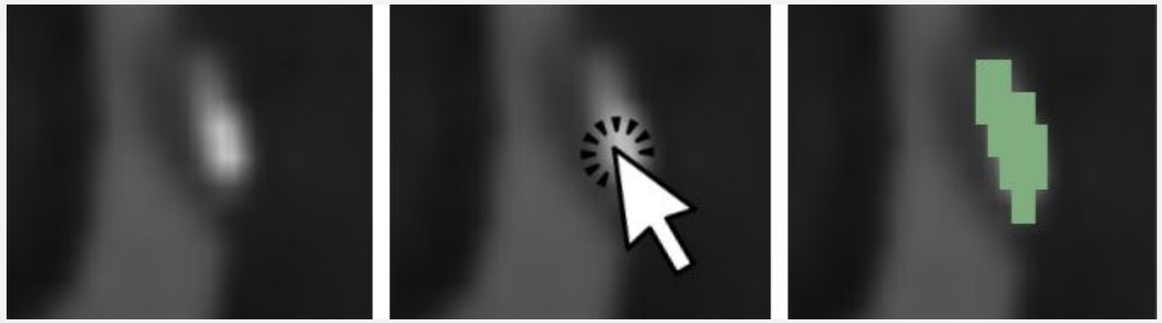
CACTAS-Tool is **faster** than **3D Slicer**:
Expert with **CACTAS-Tool** 376.6±113.52s
Expert with **3D Slicer** 631.2±325.88s
Novice with **CACTAS-Tool** 126.59±21.57s
Novice with **3D Slicer** 366.09±16.77s

Accuracy (Jaccard Index) between both softwares was comparable:
Expert with **CACTAS-Tool** 0.537±0.077
Expert with **3D Slicer** 0.464±0.238
Novice with **CACTAS-Tool** 0.481±0.070
Novice with **3D Slicer** 0.496±0.060

UMass Boston

Penn Medicine

Single-click Carotid Artery Plaque Segmentation.



Our web-based tool is **2.89x faster** than manual annotation.

All free and open source.