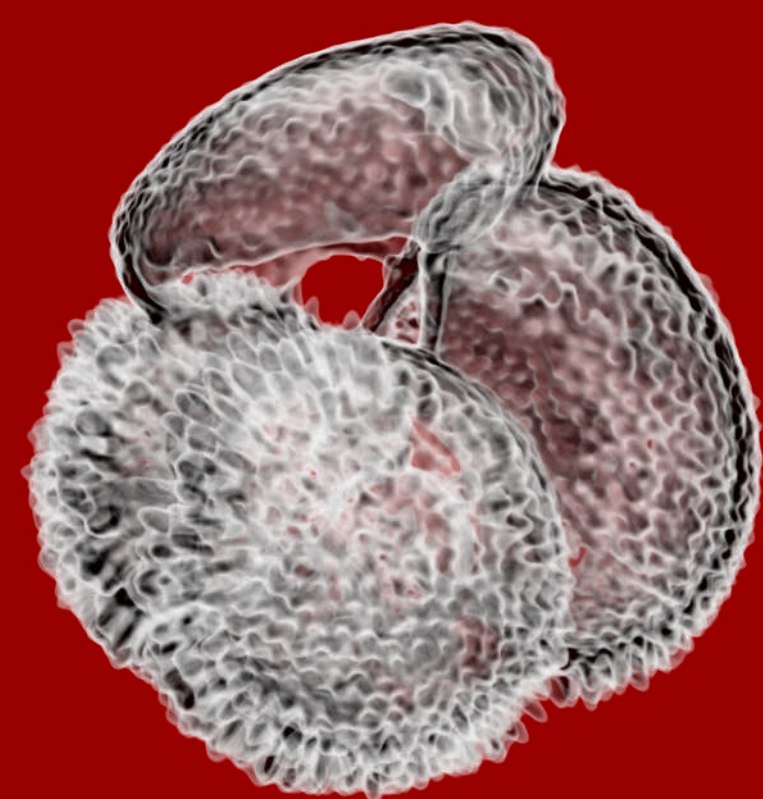




Forams Detection & Classification 2026

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Background: Planktonic foraminifera (aka forams) are tiny organisms that inhabit the sea waters. The species composition is important for understanding past climates.

Data collection: The forams are scanned using micro-CT: individual forams and mixes. The data contains 14 species.

Problem: Out of distribution detection and classification. Detect and classify individual forams in scans of foram mixtures. Train on 2,425 individual labeled forams; we test on 95 mixes with hidden labels.

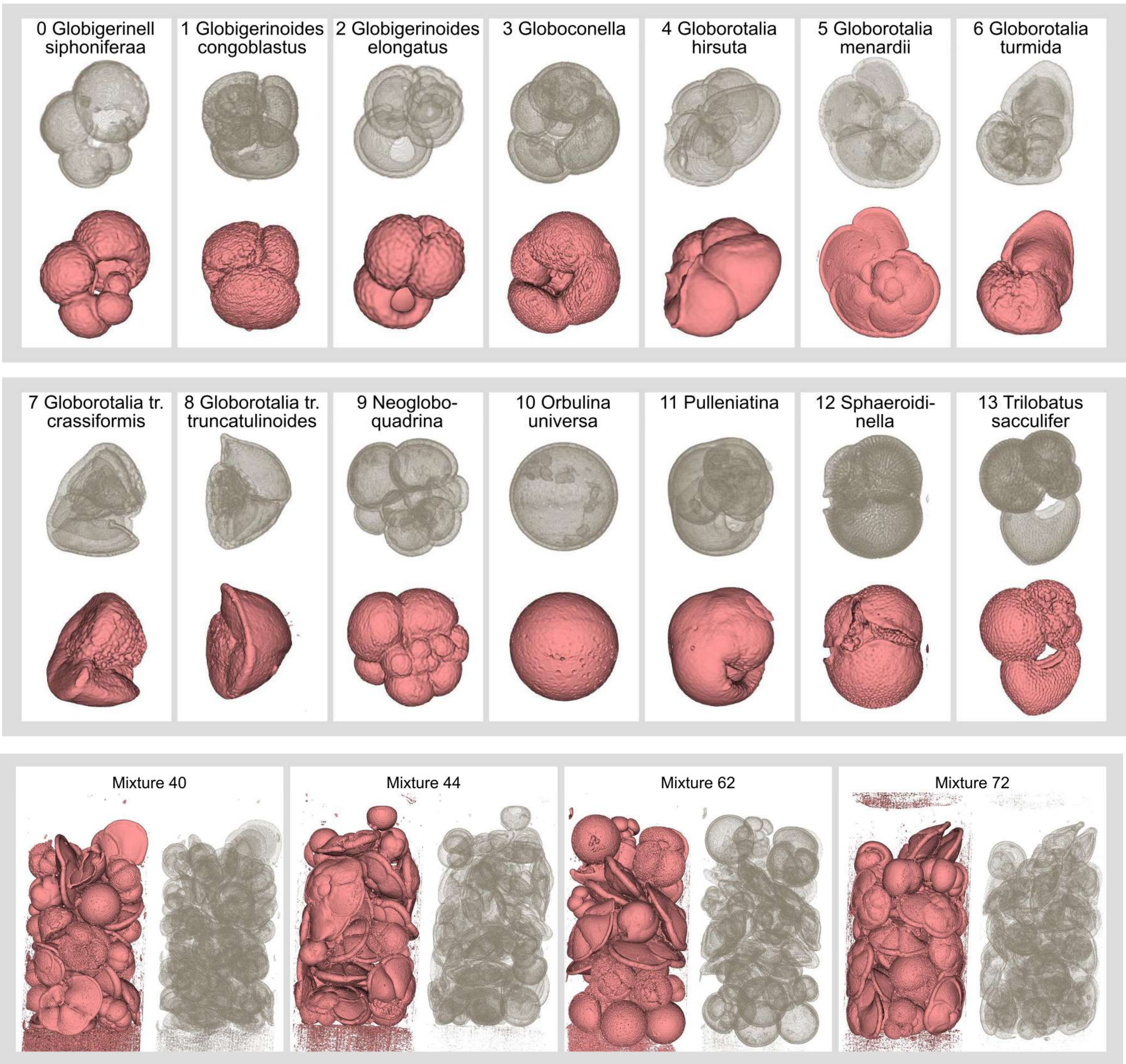
Aims: Specific – develop methods for foram detection and classification from volumes. Generic – promote the development of new deep-learning-based methods for 3D volumetric image analysis.

Foram dataset

- Individual foram volumes: 2,425 micro-CT volumes with a single labeled foram.
- 95 micro-CT mixed volumes.

Out of distribution detection and classification

- Train model on labeled individual forams.
- Detect and classify the forams in the mixes.
- Evaluated based on center position and class label.



Team	Team name	Public leaderboard	Private leaderboard
Winner	Caleb Powell	0.73891	0.76438
Second place	Octavi Grau	0.73859	0.73722
Third place	Hanif Noer Rofiq	0.56100	0.58225
Fourth place	cxukun	0.38245	0.40482

kaggle challenge

Prizes & Awards

- Kudos

Winning team approach

- 3D data augmentation – synthetic mixes from individual scans
- Two models – detection and classification
- Small detection removal

Second place team approach

- 3D data augmentation – similar approach to winner

Third place team approach

- 2D detection in slices – merged in 3D
- 2D DINOv2 feature classification – merged in 3D
- Fusing detection and classification in 3D

