Automated Intracerebral Hemorrhage Segmentation of CT Scans

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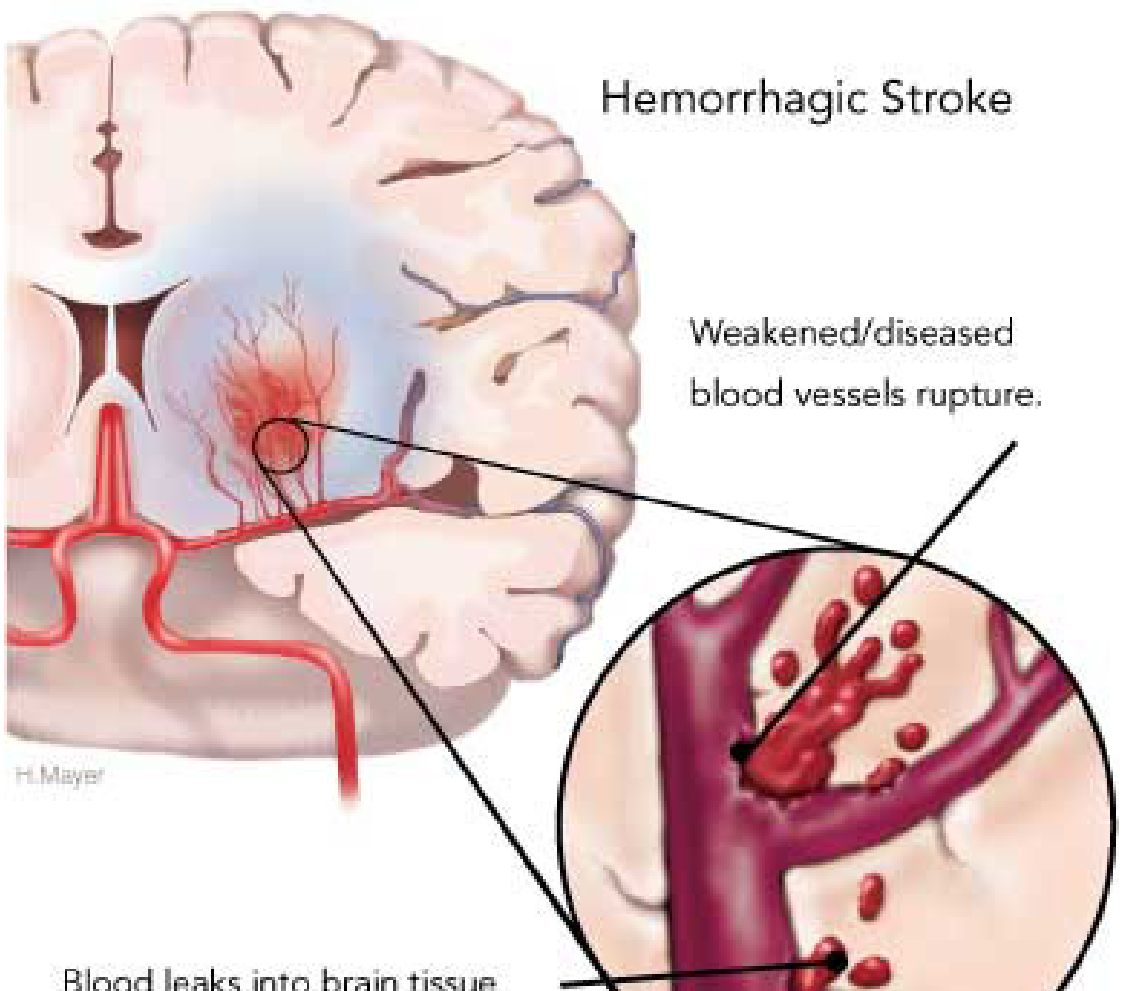
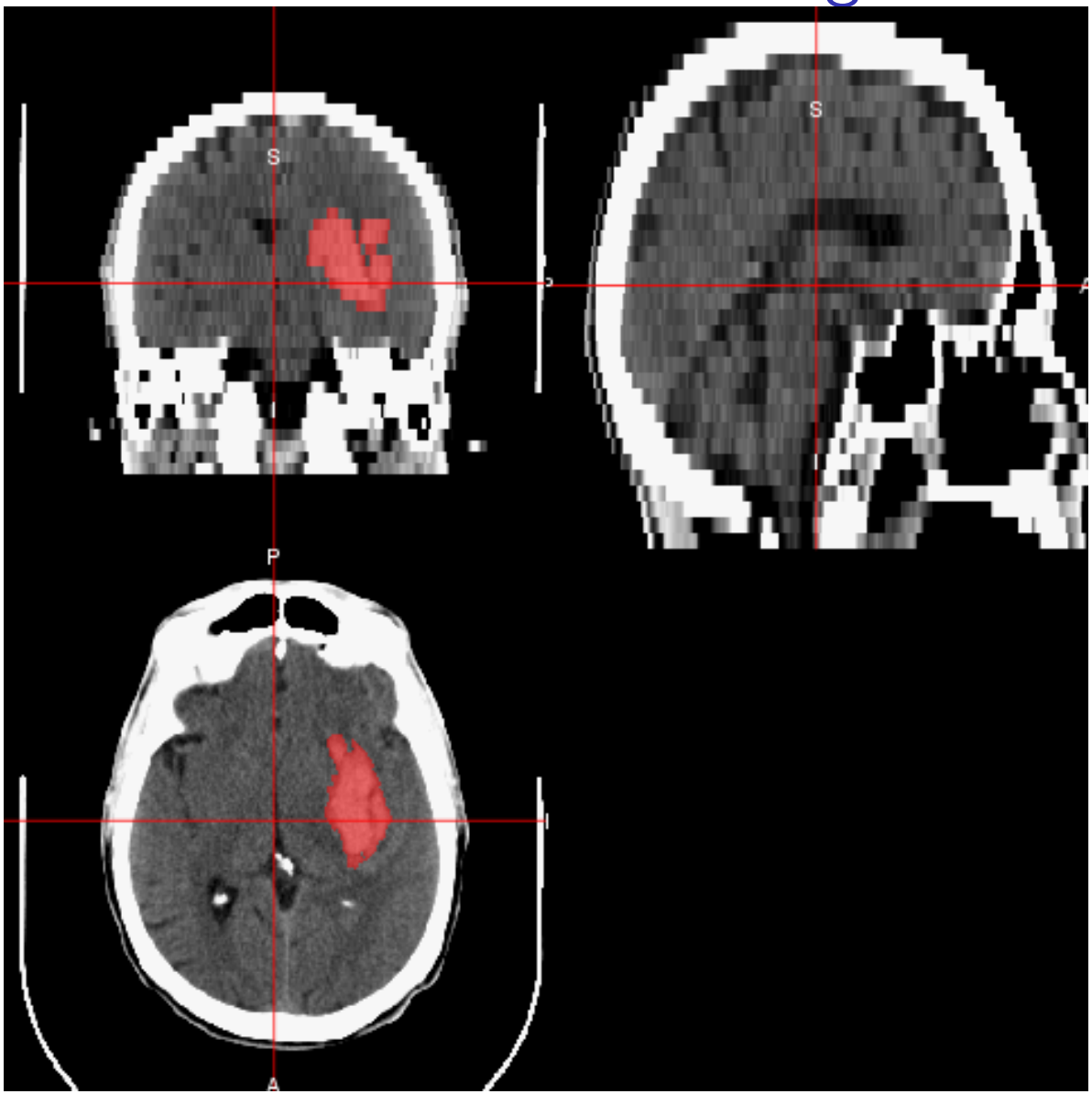
What is Intracranial hemorrhage?

- When a blood vessel ruptures into
- tissue: intracerebral hemorrhage (ICH)
- ventricles: intraventricular hemorrhage (IVH)
- $\approx$ 13% of strokes



Get ICH Mask from Manual Segmentation

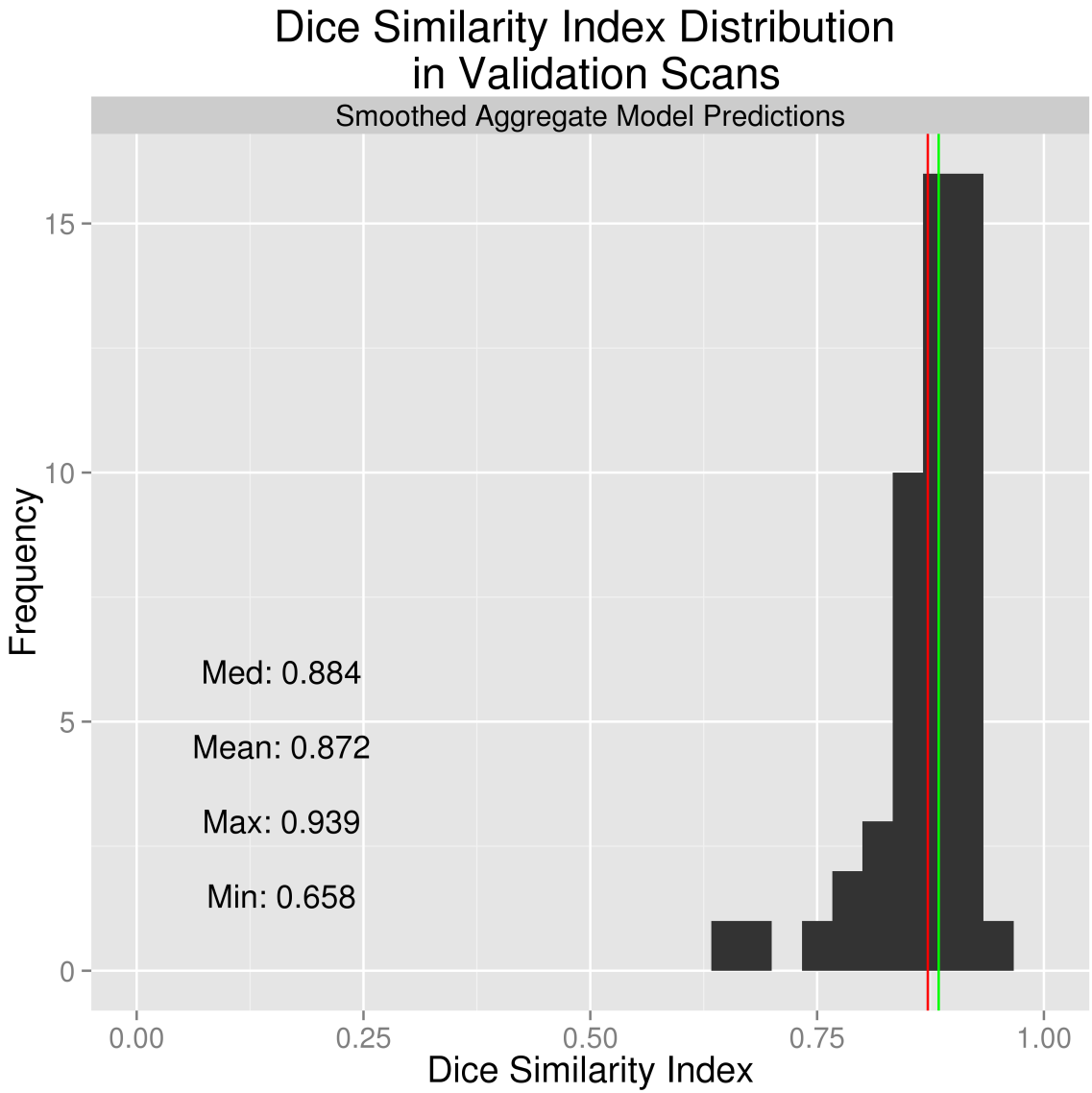


PItcHPERFECT uses Logistic Regression

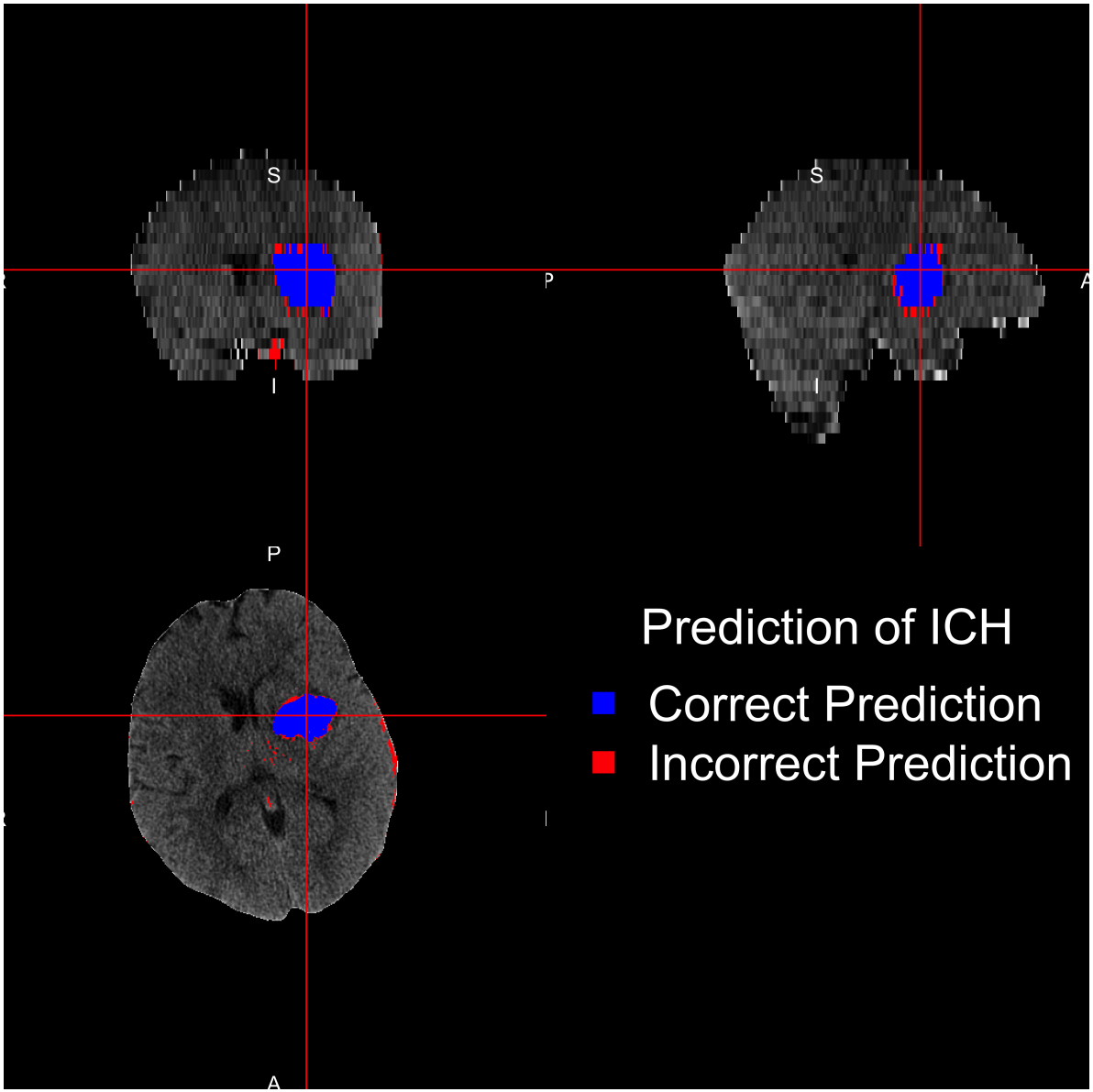
Let $y_{i,j}$ be the presence / absence of ICH for voxel j from person i.

$$\text{logit}\left(y_{i,j}\right) = \beta_0 + \sum_{k=1}^{p} x_{i,j,k}\beta_k$$

- Case-control sample voxels for a fixed percentage (25%) of outcome


Dice Similarity Index Distribution
in Validation Scans
Smoothed Aggregate Model Predictions
Frequency
15
10
5
0
Med: 0.884
Mean: 0.872
Max: 0.939
Min: 0.658
0.00
0.25
0.50
0.75
1.00
Dice Similarity Index

Prediction Comparison: DSI: 0.90



Thanks