Random Forests for Medical Image Segmentation

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1 Introduction

2 Literature Review

3 Methods

4 Results

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Left Lung	98.80% (0.43%)	98.84% (0.73%)
Left Lower Lobe	97.72% (0.71%)	97.95% (0.96%)
Left Upper Lobe	97.80% (0.42%)	97.87% (0.44%)
Right Lung	98.99% (0.45%)	99.09% (0.44%)
Right Lower Lobe	97.54% (0.60%)	97.55% (0.85%)
Right Upper Lobe	97.62% (0.57%)	97.73% (0.55%)
Right Middle Lobe	95.87% (1.30%)	95.90% (0.87%)

Table 1: Train results for lung data set with N=30.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Left Lung	97.54% (2.83%)	98.47% (1.12%)
Left Lower Lobe	88.57% (6.58%)	89.94% (7.22%)
Left Upper Lobe	89.13% (9.36%)	92.29% (6.77%)
Right Lung	98.26% (1.14%)	98.65% (0.67%)
Right Lower Lobe	90.19% (4.66%)	92.31% (5.21%)
Right Upper Lobe	85.64% (12.04%)	88.73% (4.86%)
Right Middle Lobe	73.03% (14.10%)	75.78% (17.02%)

Table 2: Test results for lung data set with N=65.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	94.80% (1.94%)	95.22% (2.19%)
Tumor Core	96.15% (2.22%)	96.72% (2.16%)
Edema	87.84% (8.95%)	90.40% (5.24%)

Table 3: SP-train

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	88.06% (8.14%)	92.73% (10.14%)
Tumor Core	92.83% (4.95%)	95.03% (4.33%)
Edema	64.95% (26.44%)	73.09% (25.93%)

Table 4: Test results for glioblastoma data set with N=10.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	95.63% (2.53%)	96.34% (2.75%)
Tumor Core	95.74% (2.36%)	96.33% (2.29%)
Edema	90.73% (6.07%)	92.17% (5.09%)
Enhancing Tumor	83.54% (8.08%)	84.53% (11.64%)

Table 5: Train results for BRATS 2018 HGG tumors with N=75.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	85.97% (13.83%)	90.68% (8.87%)
Tumor Core	81.30% (20.61%)	88.75% (12.16%)
Edema	73.84% (17.92%)	80.31% (22.47%)
Enhancing Tumor	73.28% (17.66%)	77.02% (13.54%)

Table 6: Test results for BRATS 2018 HGG tumors with N=135.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	97.34% (1.05%)	97.54% (1.25%)
Tumor Core	95.64% (2.16%)	95.81% (2.41%)
Edema	87.08% (8.00%)	89.61% (12.24%)
Enhancing Tumor	53.40% (43.33%)	83.78% (91.77%)

Table 7: Train results for BRATS 2018 LGG tumors with N=30.

Structure	Mean Dice (Standard Deviation)	Median Dice (IQR)
Whole Tumor	82.57% (16.73%)	89.12% (11.81%)
Tumor Core	57.47% (25.79%)	61.90% (42.56%)
Edema	52.00% (19.73%)	55.92% (22.16%)
Enhancing Tumor	25.32% (26.55%)	14.95% (46.47%)

Table 8: Test results for BRATS 2018 LGG tumors with N=45.

5 Future Work & Conclusions