

Table I: Characteristics of the trained deep machine learning prediction models

Model	Accuracy on library ( )	Accuracy on test images	Number of epochs	Model input
Microscopy through root surface	94.38% Jaccard index	96.43% (7 images) Jaccard index	151	222 originals, 666*256x256 (augmented)
Microscopy through root tip	87.57% Jaccard index	79.06% (7 images) Jaccard index	110	119 originals, 666*256x256 (augmented)
Microscopy sandwich root surface	96.45% Jaccard index	90.35% (6 images) Jaccard index	145	187 originals, 756*256x256 (augmented)
Microscopy sandwich root tip	92.267% Jaccard index	53.95% (6 images) Jaccard index	71	187 originals, 600*256x256 (augmented)
Scanner	85.89% Dice coefficient	85.50% (3 images: 193 tiles) Dice coefficient	87	340 rows of seedlings divided in 21816*256x256 tiles (augmented)

Table II: Single frame root angle from mobile phone image.

Root n° (bottom to top)	Angles in °
Root1	5.710593137
Root2	-11.30993247
Root3	0
Root4	-5.710593137
Root5	-5.710593137