

PHENOTYPING
TECHNIQUES



Rhizotrons ★

🔍 root | phenotyping | soil
📖 Lobet and Draye 2013

GLO-Root 💧

🔍 root | phenotyping | soil
📖 Rellán-Alvarez et al. 2015

Rhizoponics ★

🔍 root | phenotyping | hydroponic
📖 Mathieu, Lobet et al. 2015

Increases the number of experimental setup options for root studies

SmartRoot 🌐 ★

🔍 root | image analysis
📖 Lobet et al. 2011
🔗 [smartroot.github.io](https://github.com/smartroot)

Provides a comprehensive toolbox for the analysis of complex root systems

IMAGE
ANALYSIS



plant-image-analysis.org 🌐 ★

🔍 database | image analysis tools
📖 Lobet et al. 2013; Lobet 2017
🔗 www.plant-image-analysis.org

Web platform designed to help researchers find the right tools and datasets for their research. Has 10 000 page views / month

PRIMAL 🌐 ★

🔍 image analysis | machine learning
📖 Atkinson, Lobet et al. 2017
🔗 bit.ly/primal-app

Pipeline designed to reduce the analysis time of large plant image dataset by up to 75%

Water tool network 🌐 🌐 💧 ★

🔍 root | water | computational tools
🔗 bit.ly/water-network-app

Provides an interface to help researchers connect computational tools to analyse water flow in the soil root system

DATA
ANALYSIS



archiDART 🌐 🌐 ★

🔍 root | R package | topology
📖 Delory et al. 2015; 2018
🔗 [archidart.github.io](https://github.com/archidart)

R package for the analysis of root system data. Only existing one. Includes morphological and topological parameters

Root Image Library 🌐 ★

🔍 root images | annotated | RSML
📖 Lobet, Koevoets, Noll et al. 2015
🔗 bit.ly/root-image-library

Annotated dataset of 10 000 root system images + RSML files

RSML 🌐 ★

🔍 root architecture | XML
📖 Lobet, Pound, Diener et al. 2015
🔗 [rootssystemml.github.io](https://github.com/rootssystemml)

Enables the exchange of root architecture data between tools (~20) and researchers

MODELLING



PlaNet-Maize 💧 ★

🔍 root | shoot | modelling | water
📖 Lobet et al. 2014

Whole plant architecture model for the simulation of water flow in maize plants

CRootBox 🌐 💧 🌐

🔍 root | modelling | soil | water
📖 Schnepf et al. 2017
🔗 bit.ly/crootbox-web

Root architecture model. Can be used for any species. Online interface for easy use.

MECHA 🌐 💧 🌐

🔍 organ level | modelling | water
📖 Couvreur et al. 2017
🔗 [mecharoot.github.io](https://github.com/mecharoot)

Simulates water flow in a root cross section. Can be used for any species. Online interface for demonstration

- 🌐 Open source
- 💧 Water-related
- 🌐 Web tool
- ★ Lead author / PI