

AIML Summer Grand Discovery Challenge – Official Competition Rules

1. Competition Overview

The AIML Grand Challenge is a machine learning competition where students apply AI to solve real-world problems. For 2025, the challenge focuses on predicting lettuce dry shoot weight from RGB and depth images.

Participants will:

- Build regression models to predict DryWeightShoot (g/plant) from provided imagery.
- Use the supplied datasets and preprocessing pipeline to ensure consistent results.
- Submit predictions, technical reports, and reproducible code.

2. Eligibility

- Open to undergraduate, postgraduate coursework and HDR students enrolled at the University of Adelaide or University of South Australia.
- Teams of 1–3 students may participate, including interdisciplinary teams.
- Each student may only join one team.

3. Registration Requirements

Teams must register by the deadline, providing:

- Team name, members' student IDs, and proof of enrollment.
- Contact emails (shared with competition sponsor Maincode for prize administration).
- Agreement to comply with these rules.

4. Dataset and Problem Statement

- The dataset originates from the 3rd International Autonomous Greenhouse Challenge (WUR, 2021).
- Inputs:
 - RGB images (1920×1080, PNG).
 - Depth images (16-bit PNG, aligned to RGB).
- Target: DryWeightShoot (grams).
- Train/Test Split:
 - Train: 232 samples.
 - Test: 77 samples.
- Important: Auxiliary traits (height, diameter, fresh weight, leaf area) may be used during training but will not be provided in test data.

5. Preprocessing

- Crops RGB and depth images to a standard region.
- Normalizes depth values to [0,1].

- Saves processed images into structured directories.
- Supports both full dataset and train/test subset processing.

6. Submission Guidelines

Teams must submit:

1. Prediction file (CSV) following template format.
2. Technical report (max 4 pages) including problem understanding, preprocessing, model design, and results.
3. Source code (Jupyter notebook or Python scripts) with documentation and reproducibility.
 - Include requirements/environment file.
 - Ensure compatibility with the preprocessing pipeline.

Submission limits: 5 per team per day. Late submissions not accepted.

7. Evaluation and Scoring

- Primary metric: Mean Absolute Error (MAE) on DryWeightShoot.
- Judging criteria:
 - Model performance (60%)
 - Code quality & reproducibility (20%)
 - Technical report (15%)
 - Innovation & relevance (5%)
- Public leaderboard (30% of test data), private leaderboard (70% of test data). Final ranks based on private scores.

8. Prizes and Recognition

Prizes (Total Prize Pool: **\$8,000**)

- **1st Prize \$3,000** – Team including HDR students
- **1st Prize \$3,000** – Team of undergraduates
- **Runner-Up \$1,000** – HDR category
- **Runner-Up \$1,000** – Undergraduate category

- Certificates for all teams.
- Winning teams present results at awards ceremony and may be featured in AIML publications.

9. Conduct & Integrity

- No plagiarism, multi-team participation, or dataset sharing outside team.
- External datasets prohibited unless explicitly approved.

- Teams must maintain respectful conduct in forums and follow university codes of conduct.

10. Timeline

- **Competition launch:** Monday, 20 October 2025
- **Team registration deadline:** Friday, 28 November 2025
- **Competition close:** Friday, 14 February 2026 (11:59 PM ACDT)
- **Winner announcement:** Monday, 16 February 2026
- **Awards ceremony:** Friday, 20 February 2026, 4:00 PM at AIML

11. Support

- AIML technical team provides platform and support.
- Researchers available for Q&A during office hours.
- Preprocessing guidance provided via supplied script.