

Paris, 30 April 2020

An international competition to better count ears by image analysis

Data Scientists, hackers and scientists from around the world are invited to join forces to solve a new challenge! The challenge is to create a robust and accurate model capable of detecting wheat head from field images. This algorithm would have a broad impact for phenotyping research as well as practical benefits for wheat farmers in all countries. With a prize money of \$15,000, this global challenge is co-organized in France by the UMT CAPTE (INRAE - Arvalis - HIPHEN).

Agricultural research around the world has been using sensors for several years now to observe plants, such as wheat, at key moments in their development. Some important parameters are still measured manually, such as counting the number of head, which is a long and tedious task.

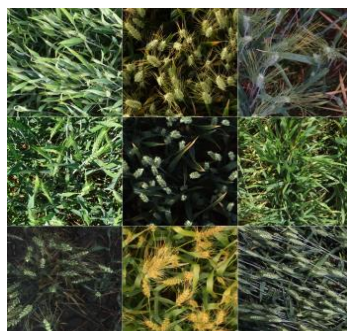
Better counting of head by image analysis

Overlapping head, variation in appearance according to maturity and genotype, the presence or absence of barbs, head orientation, or wind are all factors that make it difficult to count wheat head from digital images. A robust and accurate model capable of performing this task would be of great interest to phenotyping research and to producers around the world (assessing ear density, health and maturity). Work in this direction has already been carried out by deep learning, notably by Arvalis, but with too little data to have a generic model.

Call for global intelligence

To address this, an international data science competition, the Global Wheat Head Challenge hosted by the Kaggle.com platform, is being launched on May 4, 2020, with a \$15,000 prize to be shared* by the 3 most successful teams. A dataset of more than 190,000 wheat heads is made available to participants by the international consortium Global Wheat Dataset**. They will have to produce a sufficiently robust algorithm, tested on another dataset at the end of the challenge. This algorithm will be available in open source.

The award ceremony is scheduled for 28 August at the CVPPP conference in Glasgow (UK).



« Counting wheat head by image analysis remains a major unresolved challenge to date. » - Credit: Etienne David - Arvalis



Registration from **4 May to 28 July 2020** on www.kaggle.com
Closing of the challenge on **August 4th, 2020**



** This competition is supported by the Global Institute for Food Security (GIFS, <https://www.gifs.ca/>), Kubota (<https://www.kubota.com/>), Hiphen (<https://www.hiphen-plant.com/>) and the Institut de Convergences Agriculture Numérique #DigitAg (<https://www.hdigitag.frhiphen-plant.com/>).*

*** The international Global Wheat Dataset consortium is led in France by UMT CAPTE (INRAE - Arvalis - HIPHEN), which co-organizes this competition with the University of Tokyo, University of Queensland (Australia), University of Saskatchewan (Canada), Rothamsted Research (Great Britain), Nanjing Agricultural University (China) and ETH Zurich.*

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