Agbiz Grain Symposium 2021
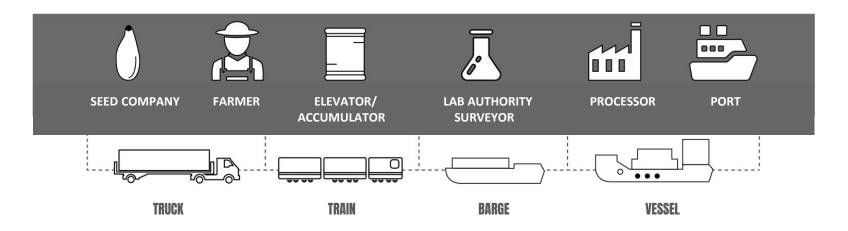22.09.21

ZoomAgri
Introduction

Develops solutions for varietal identification and differentiation and grain quality measurement, using artificial intelligence and computer vision.

- Founded in mid-2017 in Argentina and now also with offices in Spain and Australia.

- Currently 55 employees between the 3 offices

ZoomAgri

Introduction: Customer segments and sampling points

SEED COMPANY   **FARMER**   **ELEVATOR/ ACCUMULATOR**   **LAB AUTHORITY SURVEYOR**   **PROCESSOR**   **PORT**

TRUCK   **TRAIN**   **BARGE**   **VESSEL**

3 BILLION TONS OF GRAINS & OILSEEDS ARE PRODUCED YEARLY AND THEIR QUALITY IS BEING ANALYZED AT SEVERAL POINTS THROUGHOUT THE SUPPLY - CHAIN

ZoomAgri

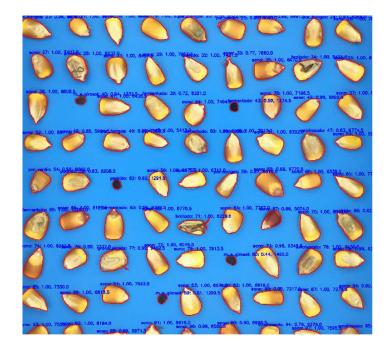Introduction: Quality determination for the last 100 years

1- Physical limitations

2- Delay in results

3- Subjectiveness

4- Fraud

5- High cost of analysis

ZoomAgri

Mission: Transform the Testing, Inspection and Certification (TIC) of agri commodities globally

Starting with **digitizing quality determination** of agri commodities via **Computer Vision, Machine Learning and IoT**
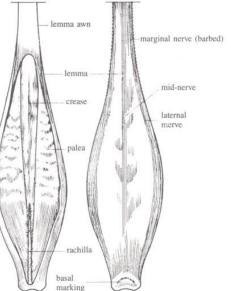
ZOOMBARLEY

Malting barley variety recognition by morphological characteristics

Application of image analysis for the varietal classification of barley: Morphological features

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Identification of malting barley varieties using computer image analysis and artificial neural networks

Nowakowski K. [1)], Boniecki P.[2)], Tomczak R.J[3)], Kujawa S[4)], Raba B.[5)]
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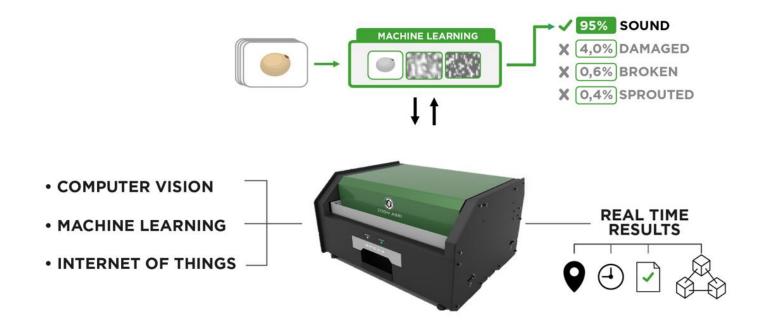
Poznan University of Life Sciences, Faculty of Agronomy and Bioengineering, **POLAND**
http://www.up.poznan.pl/
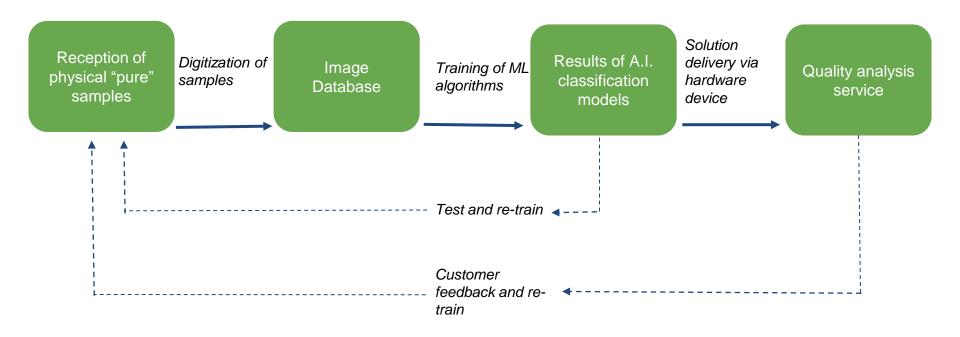
ZOOMBARLEY
Solution development and value creation

MACHINE LEARNING

✓ 95% SOUND
✗ 4,0% DAMAGED
✗ 0,6% BROKEN
✗ 0,4% SPROUTED

- COMPUTER VISION
- MACHINE LEARNING
- INTERNET OF THINGS

REAL TIME RESULTS

A GLOBAL NETWORK OF AI-POWERED, DECENTRALIZED, HI-TECH, MINI LABS.

ZOOMAGRI

agbiz

ZOOMBARLEY

Solution development and value creation

Reception of physical "pure" samples → *Digitization of samples* → Image Database → *Training of ML algorithms* → Results of A.I. classification models → *Solution delivery via hardware device* → Quality analysis service

Test and re-train

Customer feedback and re-train
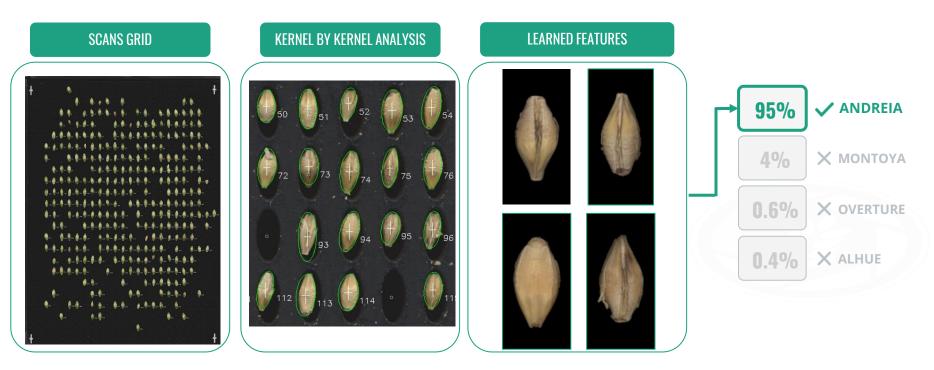
ZOOMBARLEY
Technology - Insight

SCANS GRID

KERNEL BY KERNEL ANALYSIS

LEARNED FEATURES

95% ✓ ANDREIA

4% ✗ MONTOYA

0.6% ✗ OVERTURE

0.4% ✗ ALHUE

*Up to 396 grain kernels to be analyzed within 3 minutes

Clients / Partners

Samples providers
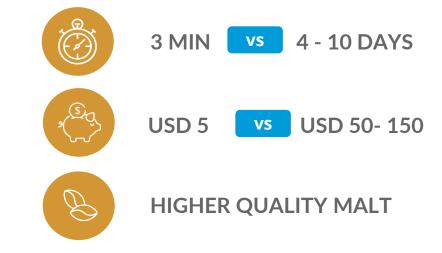
ZOOMBARLEY
Performance of technology

3 MIN **VS** **4 - 10 DAYS**

USD 5 **VS** **USD 50- 150**

HIGHER QUALITY MALT

PRESENCE IN ALL ACTORS OF THE SUPPLY CHAIN

ZOOMBARLEY
Global

- Launched in 2018 with excellent results

- ZoomBarley identifies barley varieties for 19 different countries

- Presence in all actors of the supply chain

  - Maltsters
  - Control Organisms / Grain exchanges
  - Ports / Export terminals
  - Laboratories
  - Elevators
  - Seeds companies

ZoomWheat
Recognition of commercial varieties

ZoomWheat

Recognition of commercial varieties

- Project developed in Argentina and Australia

- Reception of 1700 samples in Argentina of 93 different varieties from seeds companies and breeders

- 14M of individual grains digitized

- 10 versions of A.I. models were trained

- Devices were installed in different control organisms and breeders in Argentina as well as in Australia

- Blind tests at ASA´s offices in partnership with ARPOV and breeders with excellent results

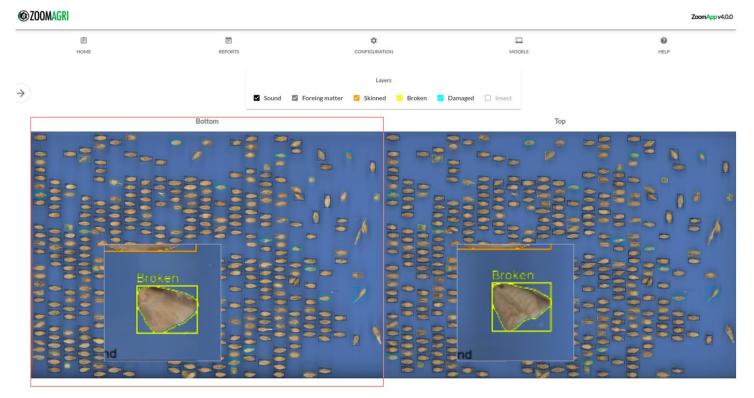- Models continue to scale up and seed company grain digitization continues

ZOOMAGRISPEX

Physical quality recognition

Accelerated by: accelerator 100 +

ZOOMAGRISPEX
Physical quality recognition

ZOOMAGRISPEX

Physical quality recognition

ZoomSoy
Variety recognition and soy hilum color recognition

- **Commercial variety recognition**

- 3 versions of A.I. models were trained in order to differentiate between + 40 varieties.

- **Soy hilum color recognition (for breeding purposes)**

- 9 versions of A.I. models were trained in order to differentiate between 6 hilum colours.

- Models continue to scale up and seed company grain digitization continues.

¨To develop breakthrough technologies which improve testing of agri supply chains, leading to healthier food and a more transparent and sustainable world!¨
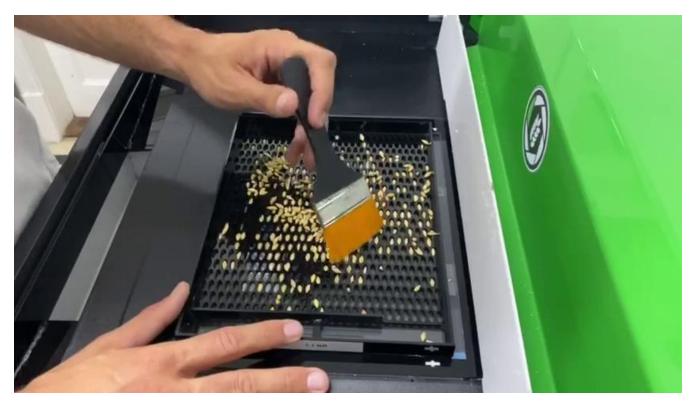
Thank you very much!

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ZOOMAGRISPEX

Physical quality recognition

ZoomSoy

Solution development and value creation