AUTOMATED PICKING AND PACKING

VISHUU MOHAN AND DIMITRI OGNIBENE
AUTOMATED PICKING AND PACKING

- **ECONOMICS** - 1/3rd of the total production costs
- **DEMOGRAPHICS** (Labor availability, population growth, urbanization, availability of land, water, climate change)
- **DEMAND** (eating habits, income)
- **HEALTH AND HYGIENE**
- **FROM BATCH ORIENTED TO CONTINUOUS OPERATION**
- **OTHER...**
Pick and place seems effortless
(is also the most common manipulation action)
However- making robots do the same is interesting and challenging

DARPA Manipulation challenge
HUMAN LIKE DEXTERTY WHILE MANIPULATING IN UNSTRUCTURED ENVIRONMENTS

AMAZON ROBOTICS CHALLENGE 2017
https://www.amazonrobotics.com/#/roboticschallenge

ROBOCUP AT WORK (EU)
http://rockinrobotchallenge.eu/work.php

DARPA Robotics challenge

KUKA Innovation challenge

Many others...........

H2020 Roadmap, EPSRC white paper ...
LET'S REVERSE ENGINEER "WHAT YOUR BRAIN WOULD DO"
REAL TIME INTEGRATION OF VISION, TOUCH, FORCE, MOVEMENT, PLANNING, PREDICTING
PICKING AND PACKING - (AUTOMATO)
While Darwin focused on manufacturing, the architecture can be applied to Agrotech.

Active Vision

Dextrous Manipulation (Humanoids, Industrial, Mobile robots)

Tool Use (Learning and Coordination)

Cause-Effect Learning/Reasoning

User Friendly Plug and Play Cognitive architectures

The university has recently purchased a state of the art Industrial robot from Universal Robotics.
Herding, Monitoring and Surveillance