

Voorraad-telling in de kas

HortiKey Plantalyzer

Erik Pekkeriet
Andreas Hofland



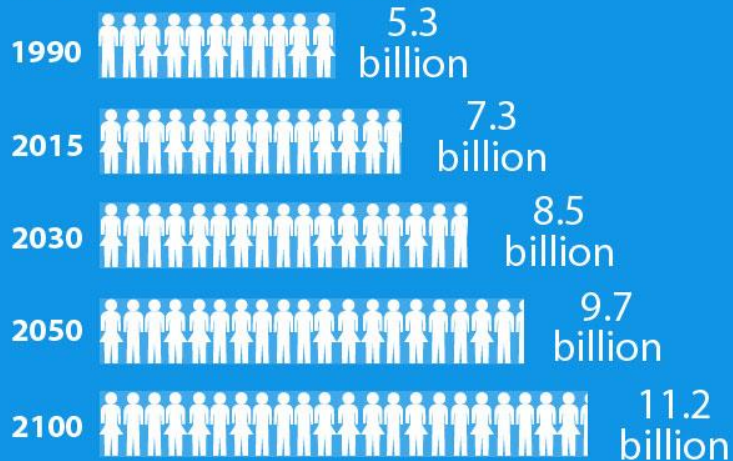


Agriculture uses
70%
of water worldwide.



World Population

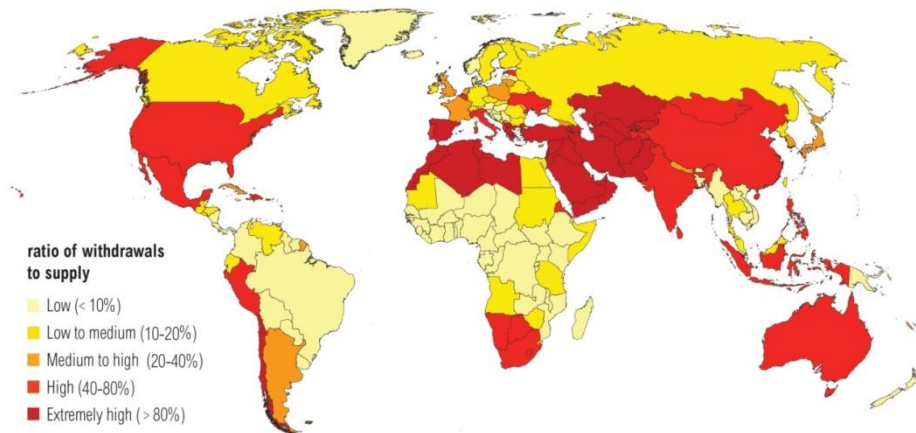
Projected world population until 2100



Source: United Nations Department of Economic and Social Affairs,
Population Division, *World Population Prospects: The 2015 Revision*
Produced by: United Nations Department of Public Information



Water Stress by Country: 2040



NOTE: Projections are based on a business-as-usual scenario using SSP2 and RCP8.5.

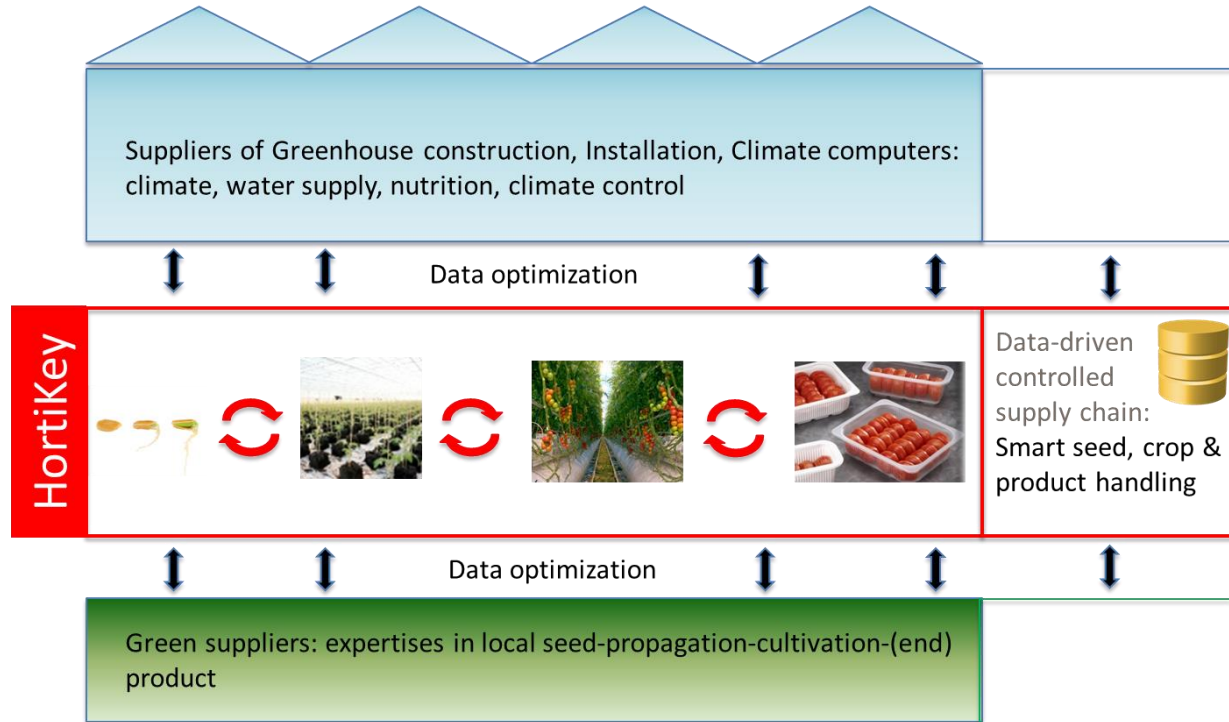
For more: ow.ly/RiWop

 WORLD RESOURCES INSTITUTE





Supply chain





Research

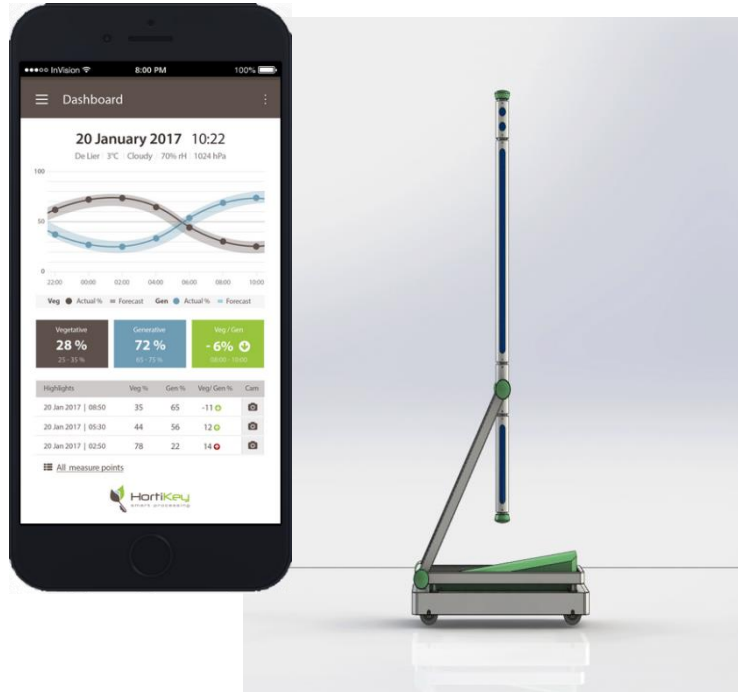


Scientific partner:





GreenTech '16: CHIMP



Crop
Health
Information
Monitoring
Platform

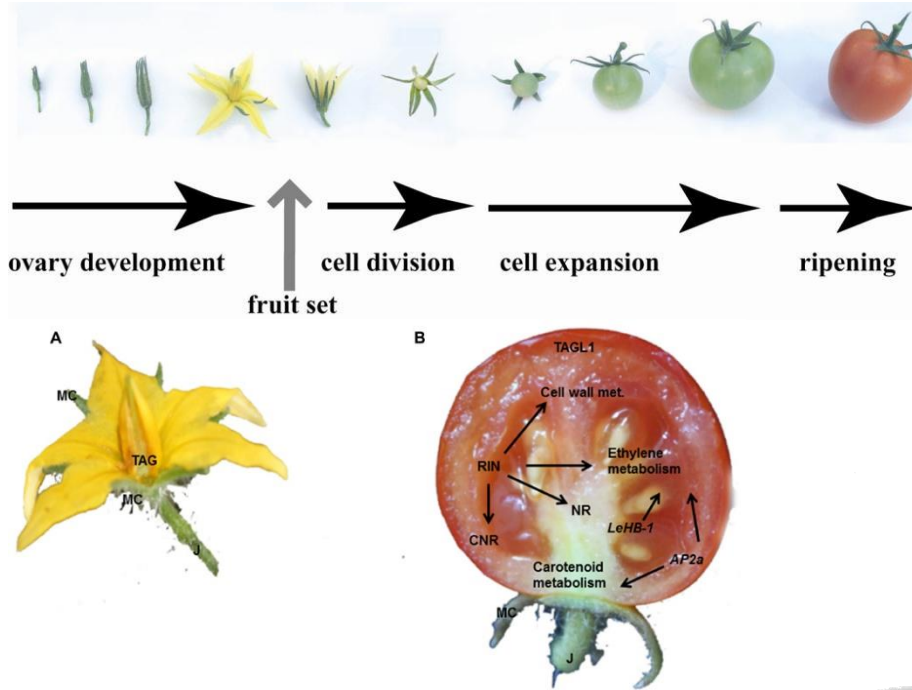


GreenTech '16: CHIMP





Vruchtrijping in tomaten





Wat als...



de foutmarge in de oogstprognose in de laatste week gehalveerd kan worden?



Daarmee deze productie i.p.v. het dagtarief tegen het weekcontract tarief verkocht wordt?



De verkoper meer tijd krijgt voor het sluiten van de deal?



Minder onverkocht blijft en dus minder gestort wordt?



Minder wijzigingen in na-oogst planning en resources (transport, verpakkingen, e.d.) ontstaat (=rust!!)



Accurate oogstprognose biedt:



Potentiële winstverdubbelaar voor kwekers (+5% omzet bij ca. 5% winst = 10% winst!)



“Het haalt de emotie uit het tot stand komen van de prijs” (Cor Hendriks – Rabobank Nederland)



Hogere leveringsbetrouwbaarheid



Voorspelbaarheid in verkoop – minder speculatie



Hogere omzet – beter resultaat



HortiKey Plantalyzer





HortiKey Plantalyzer





Digitale herkenning tomaat

Find red tomatoes based on colour only



Kleur detectie

Beelden van Wageningen UR



Digitale herkenning tomaat

Find red tomatoes based on colour and depth

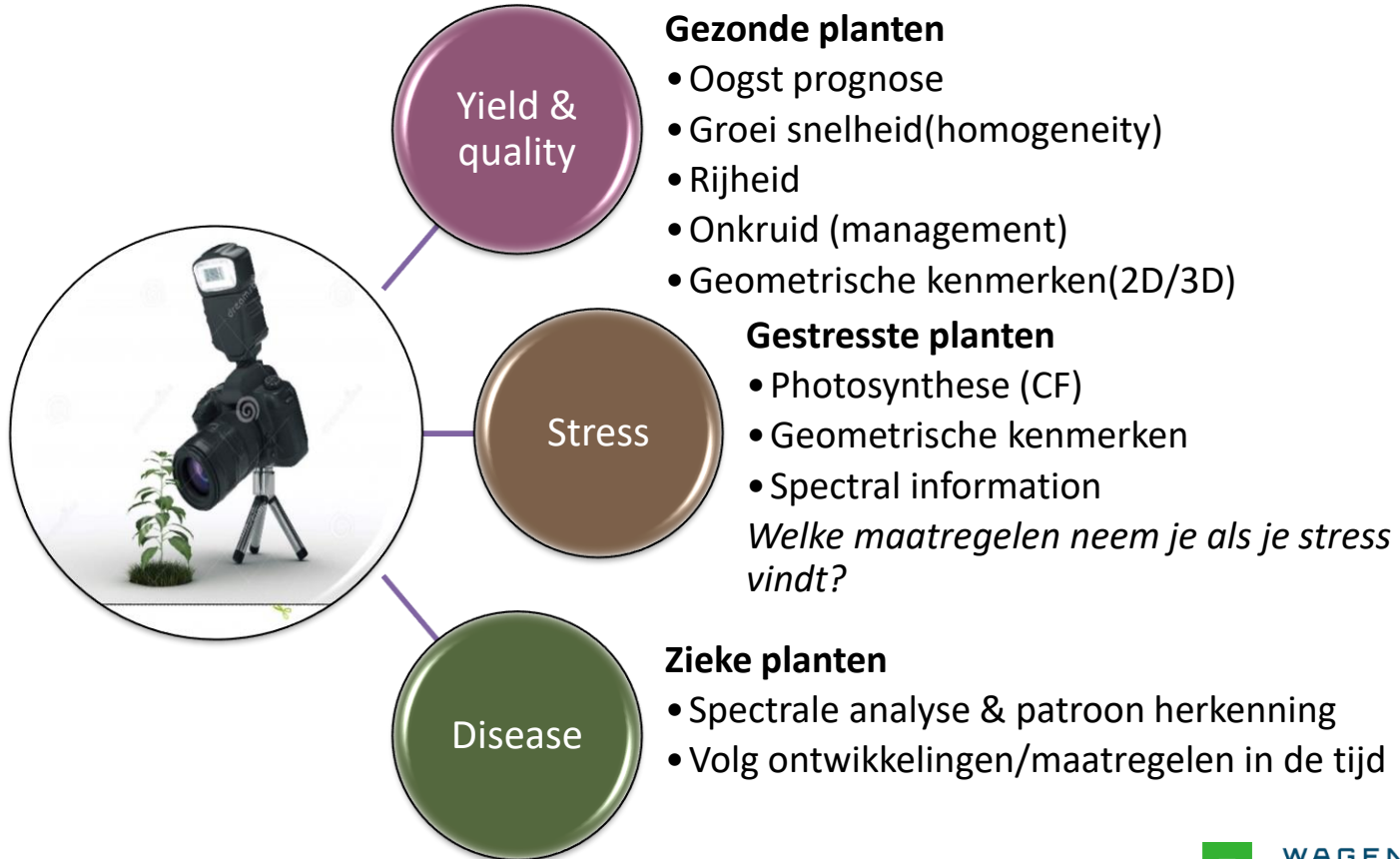


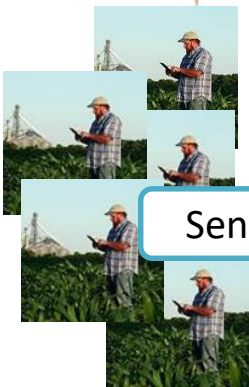
Kleur en diepte
detectie

Beelden van Wageningen UR



Gebruik van cameratechniek

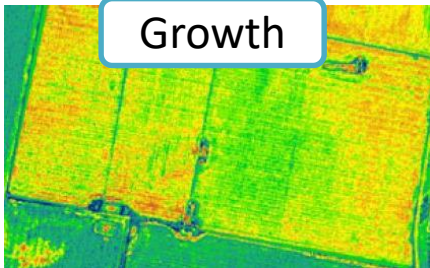




Sensors



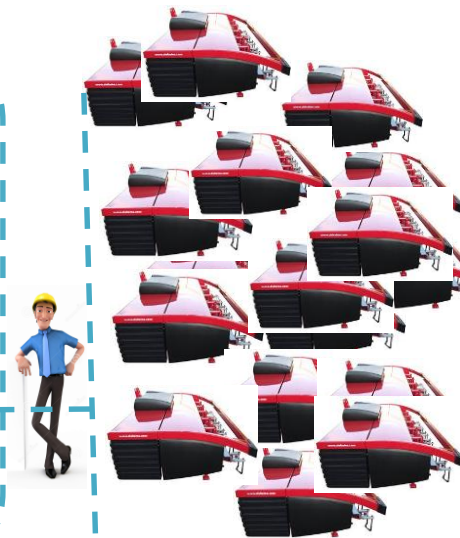
Add-on

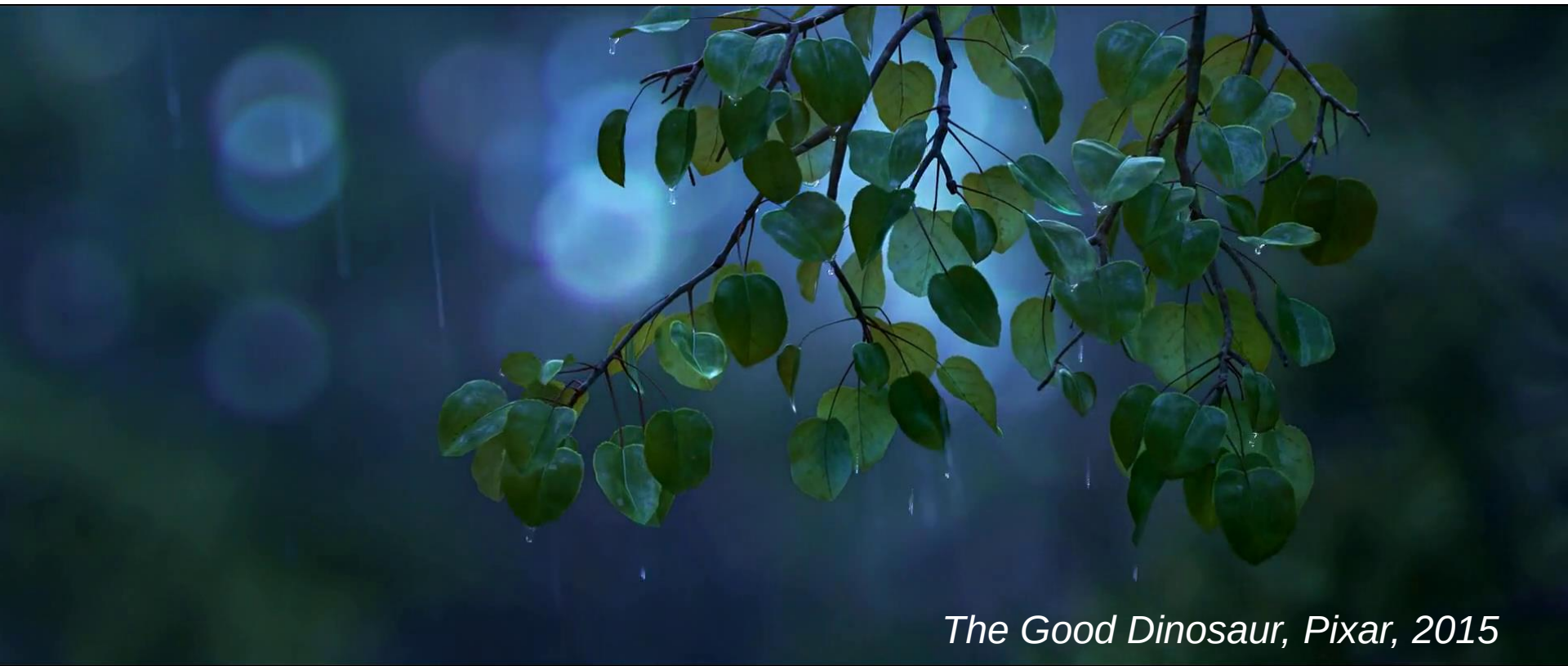


Growth



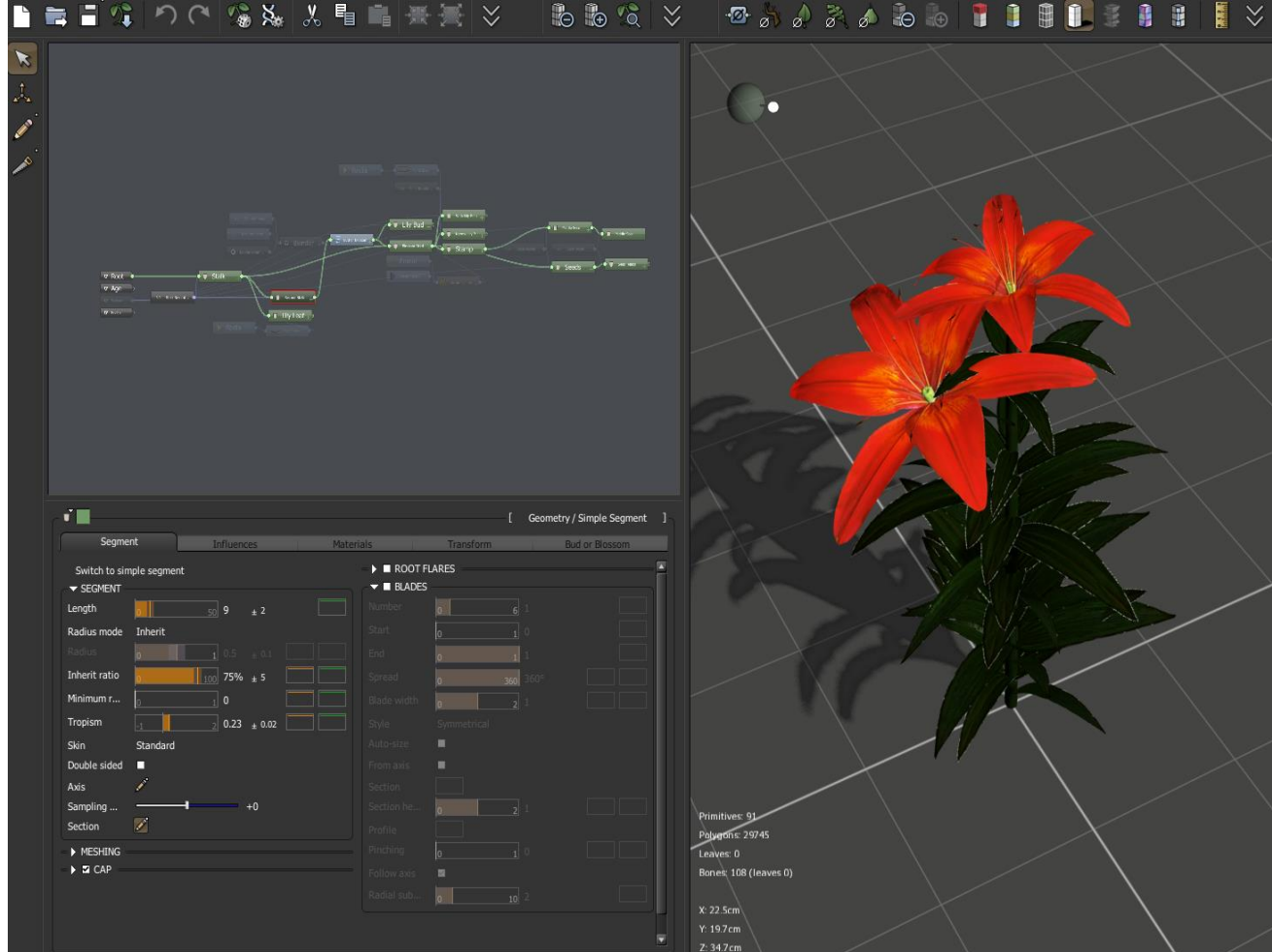
Weeds

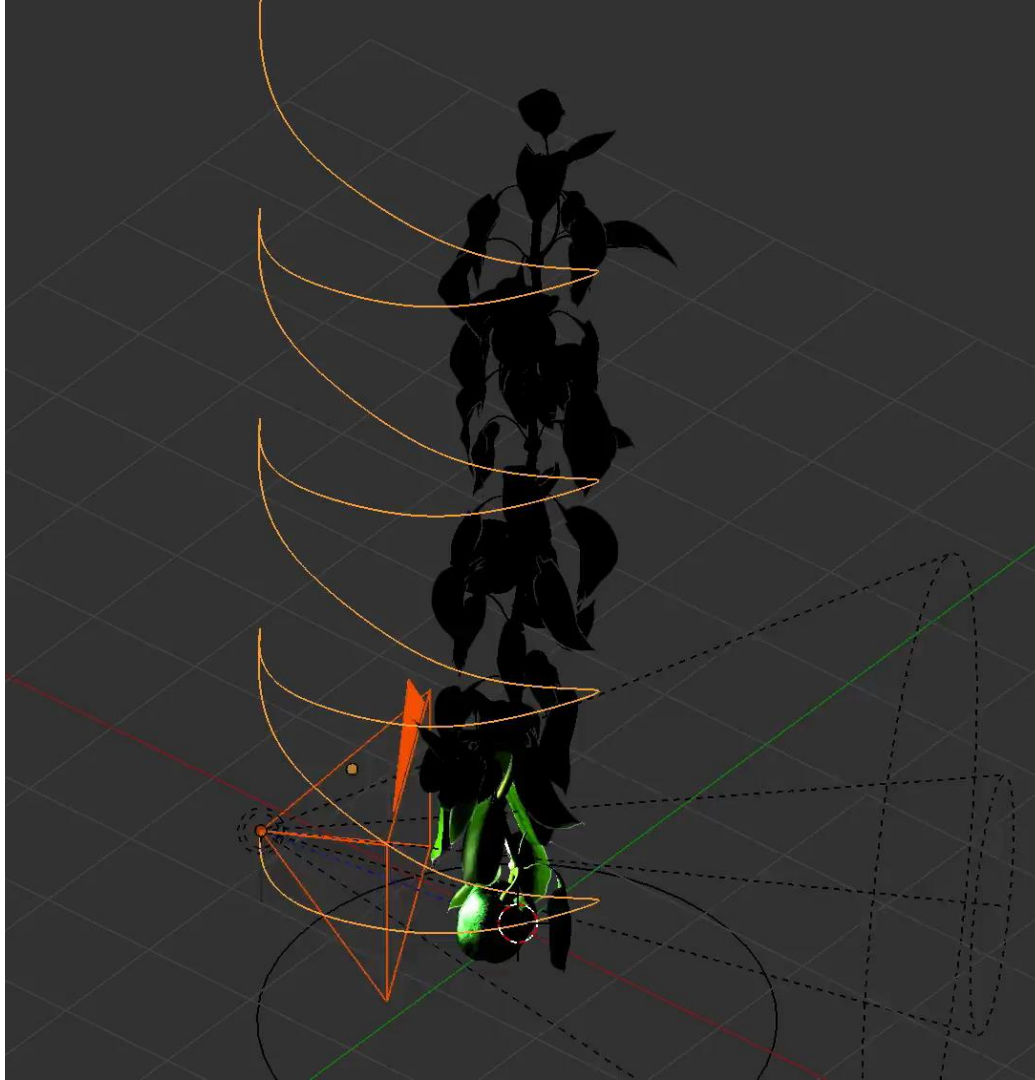




The Good Dinosaur, Pixar, 2015







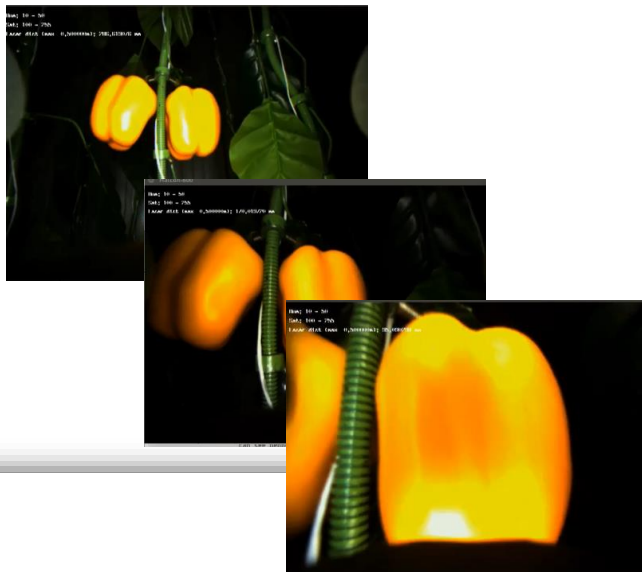






Target approach using visual servoing

A modular software framework was developed and implemented for eye-in-hand sensing and robot motion control.



Special Issue: Robotic Agriculture

Research Paper

Design of an eye-in-hand sensing and servo control framework for harvesting robotics in dense vegetation

Ruud Barth ^{a,b,*}, Jochen Hemming ^b, Eldert J. van Henten ^c

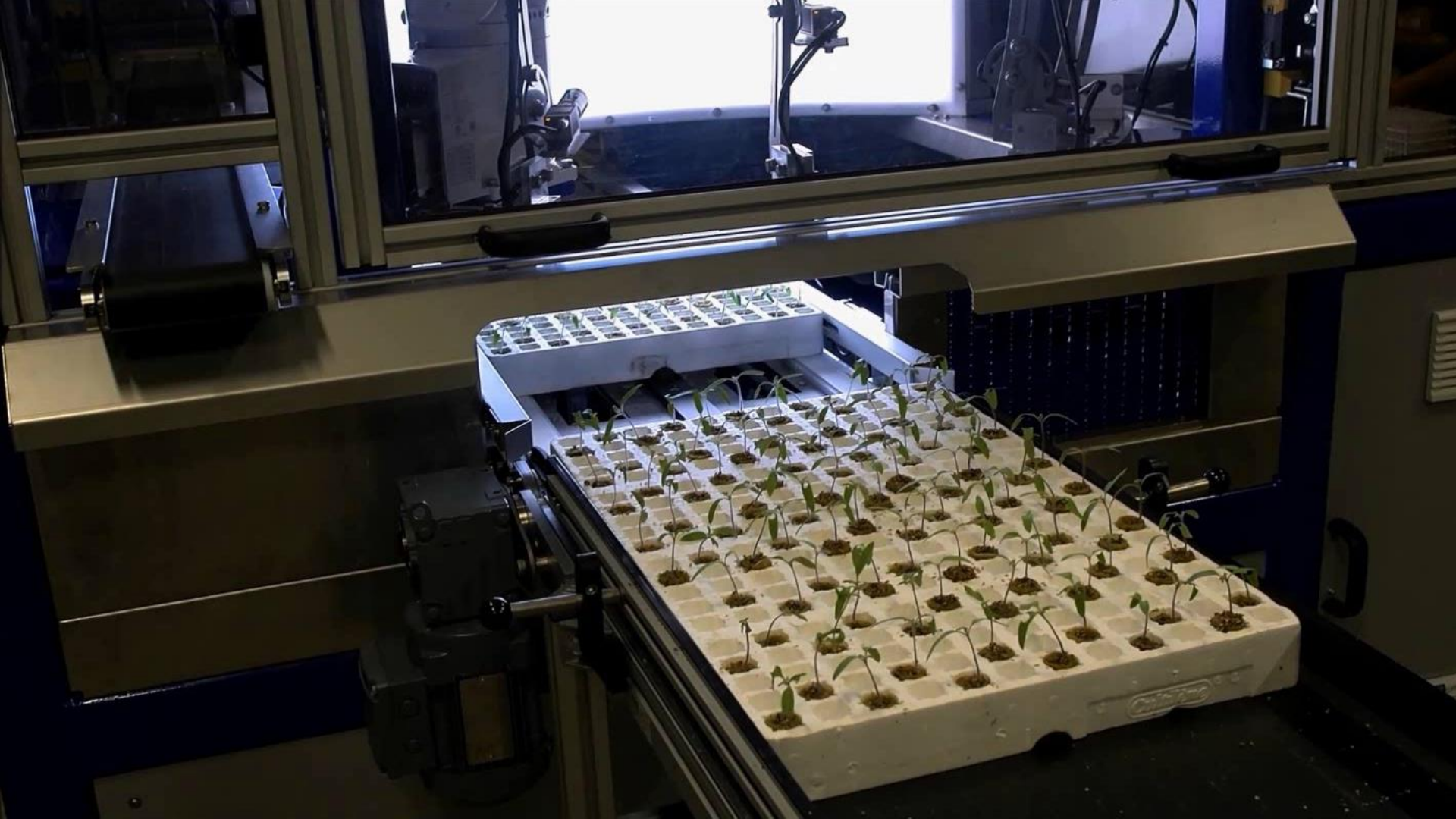
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Laboratory testing at Umeå University



x4

A photograph of a backyard garden. In the foreground, there are several raised garden beds made of dark material, filled with green leafy plants. Some beds have thin vertical stakes. In the middle ground, there is a small, light blue, kidney-shaped pool or hot tub. Behind the pool, there is a gravel border and some rounded bushes. In the background, a white fence runs across the frame, and behind it, a house with a light-colored exterior and a blue section is visible. The overall scene is a well-maintained residential garden.



Autonomoon rijden





Stappenplan

- ✓ Sensorconfiguratie
- ✓ Software aanpassing op sensorconfiguratie
- ✓ Engineering
- ✓ Productie 1^{ste} serie
- ✓ Implementatie 1^{ste} serie
- ✓ Ervaringen opdoen, verbeteringen implementeren
- ✓ Marktintroductie



Partners



Wetenschappelijke
partner:





Voor meer informatie:



HortiKey
controlled growing



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