

Ecobots

Adam Stanton, June 2020

Modern agriculture is dominated by industrial farming methods that are heavily and increasingly reliant on robotic automation. These methods destroy ecosystems and natural diversity, but are mostly unavoidable due to the need to feed the Earth's growing human population [3]. At the same time, there is a growing divide between people who embrace robotics in everyday life and those who think this is taking our species in the wrong direction (e.g. [2]).

My own perspective on the relationship between the human species and others is that we have sufficient awareness to recognise the intrinsic value of biodiversity as well as its very tangible benefit to us, and so we should consider its protection a defining goal of our existence. Another and more speculative idea that I would like to spend some time exploring tries to re-imagine the robot as a participant and supporter of natural systems, in order to change attitudes to robotics and food production. "Ecobots" are centimetre-scale robots whose function is twofold: they act as protectors of biological diversity and they also help humans to grow their own food locally, rather than by using industrial farming methods. "Locally" could include community gardens, private land, or even pots and planters in apartments.

The robots should develop an awareness of the members of the ecological community in which they are emplaced, learn to recognise the trophic relationships that define the interactions within this community, and discover the interventions they can make that maintain and strengthen these ecological systems, whilst at the same time providing an excess of food for human consumption.

This research project is very speculative since such robots are clearly a long way from practical implementation. However, in addition to making incremental technological progress, the attempt will constitute an opportunity to look at the problem of food security from a pan-species perspective (rather than the anthropocentric view we often find now), and also stimulate wider debate in society about the role of robotics and its relationship to the natural world.

Here, the dream is that humans re-imagine the robot's relationship with nature and see such artifacts as contributing to a new era of biological unity on the Earth. Perhaps a part of this attitude is already more prevalent in some countries [1], but it will be interesting to see and compare reactions to it when framed this way in Japan and beyond.

References

- [1] Christoph Bartneck et al. "Cultural differences in attitudes towards robots". In: AISB. 2005.
- [2] Tatsuya Nomura et al. "Measurement of negative attitudes toward robots". In: *Interaction Studies* 7.3 (2006), pp. 437–454.
- [3] Lori Ann Thrupp. "Linking agricultural biodiversity and food security: the valuable role of agrobiodiversity for sustainable agriculture". In: *International affairs* 76.2 (2000), pp. 265–281.