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Talking to animals and talking to things

I will argue that to build the diverse dialogue systems that will help us interact with and through the Internet of Things, we need to draw inspiration from the dizzying variety of modes of human-animal interaction. The Internet of Things (IoT) has been defined as “the set of technologies, systems and methodologies that underpins the emerging new wave of internet-enabled applications based on physical objects and the environment seamlessly integrating into the information network”. Although there is a technical view that the IoT will not require any explicit interaction from humans, it is plausible to assume that we will in fact need to develop appropriate mechanisms to translate, visualise, access and control IoT data. We thus need to develop new means for humans to have ‘words with things’. Some building blocks are already in place. Back in 2006, Bleecker proposed the ‘blogject’, an object that tracks and traces where it is and where it’s been, has an embedded history of its encounters and experiences, and possesses some form of agency, with an assertive voice within the social web. In the last four years, this vision has been brought closer to reality through significant work on the “social web of things”. But something is missing. The IoT will surely contain a huge variety of things, some with real intelligence and flexibility, and others with only minimal agency; some we will want to talk to directly; others will be too dull to hold a conversation with. Ever since Shneiderman’s advice to the HCI community, we have struggled with the idea that if a system can sustain a multi-step dialogue, it must have human-level intelligence. So, in developing new ways to interact with the pervasive IoT, we must look beyond human-human interaction for models to guide our designs. Human-pet interaction is an obvious starting point, as in the work of Ljungblad and Holmquist, and recent projects on robot companions have already developed this line of thinking. However, pets represent just one point on the spectrum of human-animal interaction. Animals vary from wild, to feral, to farmed or caged, to working, through to domestic. Their roles include: companions (e.g. pets), providing aid and assistance (e.g. guide dogs), entertainment (e.g. performing dolphins), security (e.g. guard dogs), hunting (trained predators pursuing untrained prey), food (e.g. livestock), and scientific research participants (e.g. fruitflies). If we take into account the types and roles of the animals with which humans already interact, we can take advantage of existing understanding of the breadth of human-animal interaction, and evolve a rich ecosystem of human-thing dialogue systems.