Architecture as agent
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Designing the home as adjustable aims at the core of what is potentially this century's most radical alteration to the way we live. For the first time, our environment is no longer seen as fixed, or shaped by forces beyond our control, but as in constant and noticeable change, and our relationship with it is one of mutual interaction. This applies well beyond architecture. At the small scale, the phone in your pocket not only has a degree of intelligence, but you have trusted it to manage your schedule and social contacts. At the large scale, our consumer and political choices are made with the knowledge that they impact the climate of the planet. But in the middle, where we actually plan and build our environment, architects have an unusual challenge. We are used to our environment being constant, at least in the short term, at least for the life of the building. Now we must design the change and action in time that forms the architecture.

      Artificial Intelligence is the technology that is most characteristic of this new situation, but it is not limited to computation. Even in the domain of machine learning, the past few decades have shown that classical views of computation are insufficient, and we have had to learn to deal with big data, messy data, and embodied machines that interact richly with their surroundings. The traditional boundaries between intelligent agents and environments are not so clear, and the projects in this volume show quite well that these are being challenged. There is the assumed distinction between active and passive, but neither label seems to apply to spaces in which human inhabitants slide walls to change spatial topology, robots reconfigure or replace furniture, and living, growing plants form a key part of the space. Even in the most 'passive' cases, operated by humans, the architecture itself has a kind of intelligence. The "extended mind" hypothesis proposed by philosophers Andy Clark and David Chalmers suggests that objects outside the brain and body function as part of our minds; the simple opening of a door or moving of a wall is a case in point, as it changes how we see the space in the next moment, the actions afforded to us, and the social interactions that are possible. The fully adaptive environment, then, is an attempt to extend cognition outside our head, and many of the projects have begun to sketch what looks very much like cognitive processes, considering not just one form, but many, designing the interaction structures, sometimes in explicit libraries of alternative forms.

      Some projects have aimed at making the lives of the inhabitants easier, or more comfortable, and others have aimed at a performance, or to play up the interaction and potential conflict between the single dwelling and its neighbours, and the city. This is a choice to be contended with, and an open question. One possibility is that the intelligent architecture can be seen as our slave, doing exactly what we order, in an attempt to eliminate all friction from our lives. Clark's idea of artefacts and environment as "cognitive scaffolds" sees them as part of our thinking processes, quite literally an extension of our own thought and will. But even this is disruptive, not least in that architecture has to contain many people, and when the environment is no longer a constant, neutral ground on which we act, it isn't clear how we compromise with each other over its control. The other possibility is that it is not slave, but an agent in its own right, possibly expressing its own will and demands, challenging or surprising us, and given a level of autonomy. Does it move with our will, or push back against us? The different answers given here are part of a discussion that will continue to shape our environment and our relationship with ever more intelligent machines.