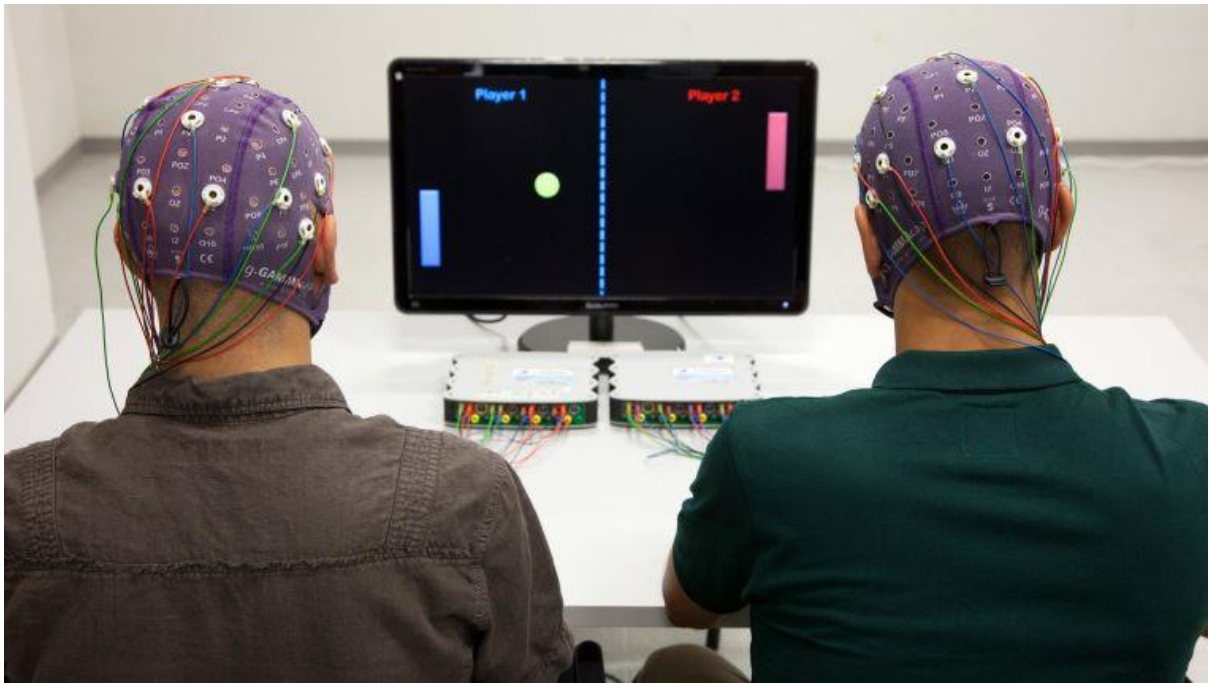

Merging Minds

The conceptual and ethical landscapes of new technologies for collective thinking, sensing, and being

We have long been aware that dominant individualistic notions of 'autonomy' and 'agency' do not accurately map the ways in which human beings and animals interact. Distinctions between 'collectivist' and 'individualist' concepts are commonly used to try to grasp the interactional, relational, and social dimensions of our identities and morality. However, the inadequacy of traditional ways of thinking about relational, joint, and collective relations is becoming increasingly clear and burdensome in light of new and emerging technologies for joint and collaborative decision-making, thinking and feeling.

Research and Development (R&D) in neuroscience, experimental psychology, climate science, and bioengineering are all pushing the envelope of what 'collectiveness' entails, by modelling and designing tools for collective cognition. Some tools are 'direct' in nature, others are 'indirect' : direct tools respond immediately to neuronal activity, and vice versa, for instance though transcranial magnetic stimulation for closed-loop interfaces; indirect tools, conversely, respond only by manual interaction by agents, for instance through smartphone applications or personal computer (PC) interfaces.

There are three classes of technological developments in these fields:

First, and most prominently, there are Brain-Computer-Interfaces (BCIs). BCIs are characterised by computer-based systems recording and analysing brain signals and translating them into commands relayed to output devices to carry out desired actions.

Second, there are Brain-Brain Interfaces (BBIs), which are characterized by combining neuroimaging and neurostimulation methods to record and deliver information between two or more brains, allowing direct brain-to-brain communication.

Finally, there are Brain-Computer-Brain Interfaces (BCBIs), which constitute networks of brains and computers performing tasks jointly, where the computer component may serve as a computational, algorithmic, or translational 'co-thinker'.

What all these constellations of minds, brains and computers have in common is that they give rise to new entities – 'Collective Minds' – which challenge our understanding of who exactly is doing the thinking or acting, and by extension which moral and ethical frameworks apply.

The Rethinking Collective Minds research team at the Wellcome Centre for Ethics & Humanities is investigating how novel constellations of brains and computers require us to rethink our conceptions of collective entities, and the ethics which accompany them. Questions we seek to explore include: what does it mean for a Collective Mind to have an identity?; what becomes of the individual in an increasingly connected world?; how can we understand the moral agency of a Collective Mind?; what entails a disruption of common views on the individual-collective distinction?

With the *Merging Minds* exhibition, we want to capture and fuse philosophical, ethical, technological, and artistic dimensions of these questions. We believe not only that the technological and academic contributions to this field can inspire artists and help produce thought-provoking and evocative art, but that the art – and working with artists – in turn will stimulate our scientific and scholarly endeavours by offering perspectives which may be difficult or impossible to formulate through other media. Additionally, we believe the exhibition will be of interest to the general public, and will engage people with the ethical and philosophical issues with which they will be confronted in a future where technologies for Collective Minds grow to become increasingly common. We hope to draw from the exhibition the experiences and views of its audience, and feed it back into our research on the social and ethical implications of Collective Minds.