Week8

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Folding at Home (F@H) is a distributed computing initiative that aims to simulate highly complex mechanisms of protein folding and in particular to analyze protein misfolding and its causes in order to better understand diseases such as Alzhheimer's, Huntington's, cancer. F@H's uses also include drug design in computer-assisted drug design which can drive down the costs of drug discovery.

These biological fields which F@H is tackling had previously been held back by computation problems which would take several hundred thousand years of computation on modern super computers. F@H encourages people all over the world to donate their computing resources, from their smart phones and laptops to their gaming consoles, and contribute to the compute efforts. Users donate computing resources by downloading software which connects to the F@H server to receive pieces of simulation (otherwise known as a work unit), complete them, and return them back to the server so it can compile it all the individual work units into a complete simulation.

F@H provides contribution stats on their website so users can see the impact they are making. F@H uses this to instill competition and encourage long-term participation.

Given the empirical nature of the analysis of biological analysis, the initiative largely adopts a positivist mindset. Additionally the initiative has been largely successful; their home website boasts that the distributed network supported by over 100,000 computers all over the world outputs more than 92,000 teraflops. One of the assumptions that made the initiative work so well is that competition would encourage people to donate their computing power for free. Given how powerful the F@H network is today, that assumption seems to be correct. This could be spun in order to incorporate cultural relativism into this quick task: people from all over the world take part in this F@H competition, because in some form their culture values competition, and, while one culture may not understand the value another culture finds in competition, it is wise to just accept it and take advantage of it for the good of science.