

The Epistemic Implications of Understanding Computer Simulations as Scientific Instruments

Computer simulations have conventionally been understood to be either extensions of formal methods such as mathematical models or as special cases of empirical practices such as experiments. As instruments, however, computer simulations belong to a third—often neglected—essential element of scientific inquiry: technical artifacts. Understanding them as such can better elucidate their actual role as well as their potential epistemic standing in relation to other scientific methods, practices and devices. In this paper I expand on the importance and the benefits of understanding computer simulations as belonging to this third important branch of inquiry and emphasize that until their nature as instruments is accounted for, the epistemology of computer simulations is at its worst misguided and at its best incomplete.