A new kind of science or just doing science properly?

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Stephen Wolfram (in)famously titled his work on ‘experimental’ computer science a ‘New Kind of Science’. Critics counter that a little scholarship might have gone a long way towards debunking the claim that something ‘new’ – be it experiment, observation or prediction had emerged from his view of the world of complex systems.

Information systems are the most complex engineered constructs in our world. They are often poorly understood and at the same time their behaviour, benign or otherwise can have dramatic consequences for the societies that depend upon them.

It is suggested that biological systems - robust, distributed processing units could represent powerful analogues to the types and scales of computing device that we might wish to construct and operate.

I will argue that while superficially attractive as an ‘inspiration’ for organisation and management, few of these analogues stand up to close scrutiny. A majority of the oft quoted biologically inspired systems from neural nets to ‘virus throttling’ technologies rapidly lose any meaningful (predictive) connection to the physical analogue.

Why is this such an attractive approach? One reason of course is that the analogue is often easy to explain to a lay audience (especially funding bodies) and to be fair, there are many difficult and fascinating problems in understanding the compute and communications strategies and structures we see in biological systems today. Another less charitable explanation is that these analogies permit an intellectually lazy approach to computing – the ‘emergent phenomenon’ – which neither recognizes the fact that these systems are constructed nor deals with them in the manner of a traditional science, the observe, hypothesis, experiment circle.

No, there is no ‘new science’ – but there is a great deal of scope to recover the rapidly disappearing art of scholarship in the development, both mechanical and social, of large complex information systems.