

## The Mode of Computing

*Tuesday 22 October 2019 16:00 (30 minutes)*

The Turing Machine is the paradigmatic case of computing machines, but there are others, such as Artificial Neural Networks, Table Computing, Relational-Indeterminate Computing and diverse forms of analogical computing, each of which based on a particular underlying intuition of the phenomenon of computing. This variety can be captured in terms of system levels, re-interpreting and generalizing Newell's hierarchy, which includes the knowledge level at the top and the symbol level immediately below it. In this re-interpretation the knowledge level consists of human knowledge and the symbol level is generalized into a new level that here is called The Mode of Computing. Natural computing performed by the brains of humans and non-human animals with a developed enough neural system should be understood in terms of a hierarchy of system levels too. By analogy from standard computing machinery there must be a system level above the neural circuitry levels and directly below the knowledge level that is named here The mode of Natural Computing. A central question for Cognition is the characterization of this mode. The Mode of Computing provides a novel perspective on the phenomena of computing, interpreting, the representational and non-representational views of cognition, and consciousness.

**Author:** PINEDA, Luis (Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, UNAM)

**Presenter:** PINEDA, Luis (Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, UNAM)

**Session Classification:** Plenary