

The Language of Networks

Abstract

Networked systems of many kinds – electrical, chemical, cyberphysical – must be modelled and constructed across the breadth of engineering disciplines. Often these are represented by informal schematic diagrams, which are then manually translated into more formal mathematical structures. In this talk I'll give a flavour for how category theory, through tools like monoidal categories and functors, allows direct formalisation of network languages themselves. This provides opportunities for both new computational tools, and new ways of reasoning.