Most of the computers built since the 1940s are based on a simple model of computation – the Von Neumann serial computation model. This model has been our field’s central metaphor. It has even influenced how we think brains work. But the sequentialist metaphor isn’t right for brains. It isn’t even right for what computers do. Instead, computation arises over a community of interacting entities.

Can we get some insights by considering other metaphors? When we shift our fundamental metaphor, it changes the way we think about computation. It changes what we teach our students. And it changes the ways in which we think about thinking itself.

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