

Title: **BBS Machines- an interdisciplinary computing model**

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Abstract:

The Blum-Shub-Smale (BSS) Machine is a generalization of the Turing Machine model of computation. It was designed for analyzing computing problems in dynamical systems, but also provides a very elegant way of doing cross-disciplinary studies. In particular it allows for a unified language for discussing problems in the physical sciences that have a computational aspect. I will give a general introduction to the BSS Machine formalism, and then show it's application to a range of problems relevant in Neuroscience. I will also discuss some more speculative applications to modeling the dynamics of chemical networks, and a brief discussion of how it could be useful to problems of logic and algorithm design generally.