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Emerging Computing Models and Technologies

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U N I V E R S I T Y

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Dear Editorial Board,

Please consider our manuscript "Reservoir Computing with Complex Cellular Automata" for publication in the journal Physica D: Nonlinear Phenomena. This work was supported in part by C-BRIC, one of six centers in JUMP, a Semiconductor Research Corporation (SRC) program sponsored by DARPA.

We believe that this work complies with the main theme of this journal as we present novel results using the nonlinear dynamics of one dimensional Cellular Automata (CA) rules to perform complex computational tasks in the Reservoir Computing framework. We demonstrate that "complex" rules, with more states or larger neighborhoods than the 256 elementary rules, can be used to construct reservoirs offering significant performance improvement for some computational tasks. We also describe a Genetic Algorithm (GA) to search for rules at the edge of chaos. Evolved rules were found to be much more likely to produce suitable reservoirs.

We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal. All authors have approved the manuscript and agree with submission to Physica D. We have read and abide with the ethical guidelines for publication in Physica D.

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Sincerely yours,
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