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## Synthesis of one-dimensional linear hybrid cellular autor

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### Abstract

This paper presents a method for the synthesis of a one-dimensional linear hybrid cellular automata from a given irreducible polynomial. A detailed description of the algorithm is given, together with the theoretical background. It is shown that two CA exist for each irreducible polynomial, open CA existence conjecture. An in-depth example of the synthesis is presented, along with benchmarks and an operation count. The algorithm solves the previously open problem of all practical applications.

### Index Terms

#### Indexing

##### Controlled Indexing

[cellular automata](#) [finite state machines](#) [polynomials](#)

##### Non-controlled Indexing

[CA existence conjecture](#) [irreducible polynomial](#) [linear finite state machines](#) [one-dimensional linear hybrid cellular automata](#) [operation count](#) [timing benchmark](#)

### Author Keywords

Not Available

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