

Seminar on Semigroups, Automata and Languages

Tuesday, May 6, 2025, **11:00** Room FC6029 (DCC Bldg., FCUP)

Luca Prigioniero

Department of Computer Science, Loughborough University, UK

Performing Regular Operations with 1-Limited Automata

In this talk I will present recent results on the descriptional complexity of basic operations on regular languages using 1-limited automata, a restricted version of one-tape Turing machines. When simulating operations on deterministic finite automata with deterministic 1-limited automata, the sizes of the resulting devices are polynomial in the sizes of the simulated machines. The situation is different when the operations are applied to deterministic 1-limited automata: while for boolean operations the simulations remain polynomial, for product, star, and reversal they cost exponential in size. The costs for product and star do not reduce if the given machines are sweeping two-way deterministic finite automata.





Com o apoio do projeto UID/MAT/00144/2021 and AVATAR 2023.12169. PEX