ДОПОВІДЬ
професора _ЖАКА САКАРОВИЧА_ (Франція)
### (для студентів, аспірантів, науковців)
П'ятниця, 11 жовтня 2019, 13:15–14:00,
факультет комп'ютерних наук та кібернетики КНУ, ауд. 01

Title: The validity of weighted automata

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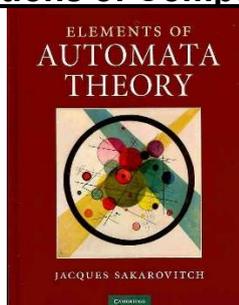
Abstract: This talk presents the work conducted on the problems that arise when dealing with weighted automata containing ε-transitions: how to define the behaviour of such automata in which the presence of ε-circuits results in infinite summations and, second, how to eliminate the ε-transitions in an automaton whose behaviour has been recognised to be well-defined. Earlier works either rule out such automata or characterize the semirings in which these infinite sums are all well-defined.

By means of a topological approach, we take a definition of validity that is strong enough to insure that in any kind of semirings, any closure algorithm will succeed on any valid weighted automaton and turn it into an equivalent proper automaton. This definition is stable with respect to natural transformations of automata.

The classical closure algorithms, in particular algorithms based on the computation of the star of the matrix of ε-transitions, cannot be used to decide validity. This decision problem remains open for general topological semirings.

We present a closure algorithm that yields a decision procedure for the validity of automata in the case where the weights are taken in Q or R, two cases that had never been treated before. These algorithm and procedure are implemented in the Awali platform.