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Controllability of positive linear discrete-time systems. (English) Zbl 0695.93009
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The authors study the class of positive linear discrete-time systems $x(t+1) = Ax(t) + Bu(t)$, $t = 0, 1, 2, \dots$ with $A = [a_{ij}]_{n \times n} \geq 0$ and $u(t) \in E_n^+$ where $x(t)$ is the system state vector, $u(t)$ is the control, E_n^+ is the non-negative orthant of n -dimensional Euclidean space and the matrices A and B are real. The properties of the reachability sets of such systems which are defined on cones are studied using convex analysis. Criteria for reachability, null controllability and controllability are reduced. Some examples are presented.

Reviewer: E.Chukwu

MSC:

93B05 Controllability
93C55 Discrete-time control/observation systems
93C05 Linear systems in control theory

Cited in **25** Documents

Keywords:

reachability sets; null controllability

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