Record Nr. UNINA9910483764803321 Autore Scaglia Gustavo **Titolo** Linear Algebra Based Controllers: Design and Applications / / by Gustavo Scaglia, Mario Emanuel Serrano, Pedro Albertos Pubbl/distr/stampa Cham:,: Springer International Publishing:,: Imprint: Springer,, 2020 **ISBN** 3-030-42818-4 Edizione [1st ed. 2020.] Descrizione fisica 1 online resource (158 pages) 629.8312 Disciplina Soggetti Robotics Automation Control engineering Mechatronics Algebras, Linear Matrix theory Algebra Robotics and Automation Control and Systems Theory Linear Algebra Linear and Multilinear Algebras, Matrix Theory Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Introduction -- Preliminary concepts -- Control technique design --Application to First Order Plus Dead Time systems -- Application to mobile robot -- Application to marine vessels -- Application to aircrafts. INDEPENDIENTE. Sommario/riassunto This book summarizes the application of linear algebra-based controllers (LABC) for trajectory tracking for practitioners and students across a range of engineering disciplines. It clarifies the necessary steps to apply this straight-forward technique to a non-linear multivariable system, dealing with continuous or discrete time models, and outline the steps to implement such controllers. In this book, the

authors present an approach of the trajectory tracking problem in

systems with dead time and in the presence of additive uncertainties and environmental disturbances. Examples of applications of LABC to systems in real operating conditions (mobile robots, marine vessels, quadrotor and pvtol aircraft, chemical reactors and First Order Plus Dead Time systems) illustrate the controller design in such a way that the reader attains an understanding of LABC. Describes the use of linear algebra based control algorithms (LABC) emphasizing their ease to use in various domains Synthesizes and generalizes the LABC, delivering realistic applications examples with additive uncertainty and time delay Presents an alternative perspective of control systems theories.