1. Record Nr. UNINA9910484910703321

Autore	Wei Yusheng
Titolo	Truncated Predictor Based Feedback Designs for Linear Systems with Input Delay / / by Yusheng Wei, Zongli Lin
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Birkhäuser, , 2021
ISBN	3-030-53429-4
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XVI, 349 p. 65 illus., 54 illus. in color.)
Collana	Control Engineering, , 2373-7727
Disciplina	629.83
Soggetti	System theory Control theory Automatic control Systems Theory, Control Control and Systems Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Notation -- Introduction -- Truncated Predictor Feedback for Continuous-Time Linear Systems -- Truncated Predictor Feedback for Continuous-Time Linear Systems for Discrete-Time Linear Systems -- Truncated Predictor Feedback for Exponentially Unstable Linear Systems -- Delay Independent Truncated Predictor Feedback -- Adaptive Feedback Laws to Accommodate Unknown Delay -- Conclusions.
Sommario/riassunto	This monograph is the first of its kind to present innovative research results on truncated predictor feedback (TPF) designs for general linear systems with input delay. Beginning with a brief review of time delay systems, the first half of the book focuses on TPF with a constant feedback parameter. Both state feedback and output feedback are considered. It is established that TPF achieves stabilization in the presence of an arbitrarily large bounded delay if the open loop system is not exponentially unstable. Examples are presented to illustrate that TPF may fail to stabilize an exponentially unstable system when the delay is sufficiently large. Bounds on the delay are then established under which stabilization can be achieved. The second half of the book

explores variations of the TPF laws designed with a non-constant feedback parameter to accommodate unknown delays and improve closed-loop performance. The authors employ a step-by-step approach to presenting the ultimate resulton a completely delay-independent feedback law. Truncated Predictor Based Feedback Designs for Linear Systems with Input Delay will appeal to control engineers, control theorists, and graduate students studying control systems. This volume will also be a valuable resource for engineers and applied mathematicians interested in dynamic systems with time delays.