A review of the book "A linear systems primer" by Panos J. Antsaklis and Anthony N. Michel, Birkhäuser, Boston, 2007.

This is a textbook introduction to system theory and linear systems control, for a one-semester course at first-year graduate level, for students with a background in engineering. This primer is a shortened version of the comprehensive book [P. J. Antsaklis, A. N. Michel. Linear systems. Birkhäuser, Boston, 2006] reviewed in MR2197279 (2006k:93001), a reprint (with some additions and corrections) of an original book (same authors, same title) published by McGraw-Hill, New York, in 1997, in turn reviewed extensively by T. E. Djaferis in IEEE Trans. Autom. Control, Vol. 44, No. 6, pp. 1320-1321, June 1999 and by S. P. Bhattacharyya in Automatica, Vol. 36, No. 5, pp. 783-785, May 2000.

This primer is aimed essentially at course use, with an emphasis on key results and essential theory. Its 2006 companion book, aimed at researchers working in the field, contains in addition an extensive coverage of time-varying systems and all the proofs of the technical results. A complete solution manual to the exercises described in the primer is available from the publisher, even though answers to some selected exercises are given at the end of the book. Each chapter ends with a useful "summary and highlights" section and well-documented historical notes pointing back to the technical literature.

The primer (together with its companion book) covers some material on polynomial matrices and matrix fractional representations which is typically omitted in linear systems courses. Based on this material, the book culminates with a chapter on the parametrization of all stabilizing controllers and its application in systems design.

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