

L_1 LINEAR INTERPOLATOR FOR MISSING VALUES IN TIME SERIES*

ZUDI LU¹ AND Y. V. HUI²

¹*Institute of Systems Science, Academy of Mathematics and System Sciences,
Chinese Academy of Sciences, Beijing 100080, China*

²*Department of Management Sciences, City University of Hong Kong, Academic Building,
83 Tat Chee Avenue, Kowloon, Hong Kong, China, e-mail: msyervan@cityu.edu.hk*

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Abstract. We propose a minimum mean absolute error linear interpolator (MMAELI), based on the L_1 approach. A linear functional of the observed time series due to non-normal innovations is derived. The solution equation for the coefficients of this linear functional is established in terms of the innovation series. It is found that information implied in the innovation series is useful for the interpolation of missing values. The MMAELIs of the AR(1) model with innovations following mixed normal and t distributions are studied in detail. The MMAELI also approximates the minimum mean squared error linear interpolator (MMSELI) well in mean squared error but outperforms the MMSELI in mean absolute error. An application to a real series is presented. Extensions to the general ARMA model and other time series models are discussed.

Key words and phrases: Autoregressive process, innovation departure, linear interpolation, minimum mean absolute error, missing values.

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