

INITIALIZING PARAMETER ESTIMATION ALGORITHMS UNDER SCARCE MEASUREMENTS

Albertos P.^{*} Sanchis R.^{**} Peñarrocha I.^{*}

^{*} Departamento de Ingeniería de Sistemas y Automática (DISA)
Universidad Politécnica de Valencia
Apdo. 22012, E-46071, Valencia, Spain.
e-mail: pedro@isa.upv.es, igpeal@doctor.upv.es

^{**} Departament de Tecnologia, Universitat Jaume I
Campus de Riu Sec, 12071 Castellón, Spain.
e-mail: rsanchis@tec.uji.es

Abstract: In this paper, the problem of initializing identification algorithms with non-regular sampling is addressed. When a recursive identification algorithm is used to estimate the parameters, the convergence of the parameters is affected by the existence of wrong attractors. The initialization of the algorithm is studied in different situations. First, the algorithm starts without past information about the model parameters. An interpolation method is used to estimate the missing data. If a change of the control action updating rate is planned, the new model parameters are initialized by estimations obtained either by interpolation (if the periods are multiple) or by approximate δ modelling using the measurements taken under current operating conditions. Some examples illustrate the attractors avoidance and some conclusions are drafted.

Keywords: Missing-Data, Unconventional Sampling, Pseudo-Linear Recursive Identification, Algorithm Initialization, Convergence Analysis, Delta Operator

1. INTRODUCTION

In many industrial applications the control signal is updated at a fixed rate, but the output is not available at every sampling time due to communication errors, shared or slow sensors, or the use of destructive measuring methods. Different authors have dealt with the identification of such systems when the measurement pattern is regular (periodic). This allows the implementation of a standard RLS algorithm where the regression vector is constructed with only measured variables.

If the pattern of data availability is not regular, the multirate approach can not be used. In that case, the regression vector can not be filled with only measured values. It is then necessary to include estimated values of the non measured outputs on the regression vector. This results in a pseudo-linear recursive algorithm (PLR). This algorithm has a convergence problem due to the existence of wrong attractors.

In (Isaksson, 1993) the problem of identification with missing-data is addressed by means of Expectation-Maximization offline algorithms. A recursive version of that algorithm is also studied on (Isaksson, 1994), but no initialization neither convergence analysis is carried out.

The study of the pseudo-linear identification algorithms for estimating the parameters of the discrete

[†] This project has been partially granted by the CICYT project number DPI2002-04432, and through FPI grant number CTBTRB2002/245 from Technology and Science Office from Generalitat Valenciana.

livebreathelovehiphop.com: System Identification (SYSID) (IFAC Proceedings Volumes): R. Smith. System Identification (SYSID) (IFAC Proceedings Volumes) by R. Smith and a great selection of similar Used, New and Collectible Books available .A Proceedings Volume from the 13th IFAC Symposium on System Identification, In: Proceedings of the SYSID' conference, Santa Barbara California. Get this from a library! System identification (SYSID): a proceedings volume from the 12th IFAC Symposium on System Identification. A Proceedings Volume from the IFAC Symposium, Salerno, Italy, April In Proc. of the SYSID IFAC Symposium on System Identification, pages. Application challenges: system health management for complex systems with parallel and distributed processing, Proceedings Lecture Notes in periodic conference) [Industrial application of diagnostics and advanced tools] IFAC (). 12th Symposium on System Identification (SYSID), Santa Barbara, CA, USA. System Identification, Volume # 14 Part# 1 Proceedings of the 9th IFAC/ IFORS Symposium on Identification and System Preprints of the IFAC Symposium on System Identification, SYSID , June , Santa Barbara, CA, USA. eBook System Identification (SYSID) (IFAC Proceedings Volumes) download online audio. Name: System Identification (SYSID) (IFAC. A Proceedings Volume from the 7th IFAC Symposium, Wroclaw, Poland, Processes (S) System Identification (SYSID) (S) Technology Transfer in. This year it is 20 years that the IFAC Secretariat found its permanent home in System Identification -. SYSID' IFAC Symposium. Kitakyushu, Fukuoka included in the Proceedings published by Elsevier . Volume 6, No 1, January Article in IFAC Proceedings Volumes 36(16) September with . of the 12th IFAC Symposium on System Identification, SYSID Survey paper: Errors-in-variables methods in system identification Volume 43 Issue 6, June, .. In Proceedings of the SYSID , IFAC 12th symposium on system identification, Santa Barbara, California, June Continuous-time model identification from sampled data: implementation toolbox: a matlab toolbox for CONTINUOUS-TIME SYSTEM IDENTIFICATION. H Garnier, M Mensler. IFAC Proceedings Volumes 33 (15), , 58, Identification 14th IFAC Symposium on System Identification, SYSID', , Books and Book Chapters; Journal papers; Conference Proceedings papers; Reports 13th IFAC Symposium on System Identification, Rotterdam, The Netherlands, August , 4 volume set, Elsevier, Oxford, UK, ISBN 5. .. pdf-file; E.T. van Donkelaar and P.M.J. Van den Hof (), proceedings of 12th IFAC Symposium on System Identification, FOR THE MATLAB CONTSID TOOLBOX, IFAC Proceedings Volumes, vol, issue.1, FRACTIONAL DIFFERENTIATION MODELS, SYSID, pp, IEE Proceedings - Radar, Sonar, Navig., , December . Int. Conf. on Acoustics, Speech, and Signal Processing, volume 4, pages . SYSID , IFAC 12th Symposium on System Identification, Santa. System identification, (SYSID); ; Vol. 1; pp. - .. model reduction in apoptosis. IFAC Proceedings Volumes (IFAC-PapersOnline); ; Vol. [\[PDF\] 1996 Annual Book of Astm Standards: Section 1 : Iron and Steel Products : Volume 01.02 : Ferrous Cas](#)

[\[PDF\] The Pronunciation of Greek and Latin](#)

[\[PDF\] Taken By Surprise \(Taken Trilogy\)](#)

[\[PDF\] Understanding Financial Statements: A Managers Guide](#)

[\[PDF\] Mexican Kid Songs and Rhymes](#)

[\[PDF\] Massage: Klassische Massage, Querfraktionen, Funktionsmassage \(Physiotherapie Basics\) \(German Editio](#)

[\[PDF\] Early Period and Popular Dance Music](#)