Publications

Martin Enqvist

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Theses

[T3] M. Enqvist. *Linear Models of Nonlinear Systems*. PhD thesis, Linköping University, Linköping, Sweden, 2005

[T2] M. Enqvist. Some results on linear models of nonlinear systems. Licentiate's thesis no. 1046, Department of Electrical Engineering, Linköping University, Linköping, Sweden, 2003

[T1] M. Enqvist. Aspects of high precision estimation of vehicle dynamics. Master's thesis LiTH-ISY-EX-3116, Department of Electrical Engineering, Linköping University, Linköping, Sweden, 2000

Book chapters

[BC1] M. Enqvist. Identification of block-oriented systems using the invariance property. In F. Giri and E.-W. Bai, editors, *Block-oriented Nonlinear System Identification*, pages 147–158. Springer, Berlin Heidelberg, 2010

Papers in refereed scientific journals

[J9] J. Linder and M. Enqvist. Identification of systems with unknown inputs using indirect input measurements. *International Journal of Control*, 90(4): 729–745, 2017

[J8] J. Escobar and M. Enqvist. Instrumental variables and LSM in continuous-time parameter estimation. *ESAIM: Control, Optimisation and Calculus of Variations*, 23(2):427–442, 2017

[J7] Y. Jung, J. Fritzin, M. Enqvist, and A. Alvandpour. Least-squares phase predistortion of a +30 dBm class-D outphasing RF PA in 65 nm CMOS. *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, 60(7):1915–1928, 2013

[J6] J. Fritzin, Y. Jung, P. N. Landin, P. Händel, M. Enqvist, and A. Alvandpour. Phase predistortion of a class-D outphasing RF amplifier in 90nm CMOS. *IEEE Transactions on Circuits and Systems—Part II: Express Briefs*, 58(10):642–646, 2011

[J5] C. Lyzell, T. Glad, M. Enqvist, and L. Ljung. Difference algebra and system identification. *Automatica*, 47(9):1896–1904, 2011

[J4] M. Enqvist. Separability of scalar random multisine signals. *Automatica*, 47(9):1860–1867, 2011

[J3] L. Lauwers, J. Schoukens, R. Pintelon, and M. Enqvist. A nonlinear block structure identification procedure using frequency response function measurements. *IEEE Transactions on Instrumentation and Measurement*, 57(10):2257–2264, 2008

[J2] J. Schoukens, R. Pintelon, and M. Enqvist. Study of the LTI relations between the outputs of two coupled Wiener systems and its application to the generation of initial estimates for Wiener-Hammerstein systems. *Automatica*, 44(7):1654–1665, 2008

[J1] M. Enqvist and L. Ljung. Linear approximations of nonlinear FIR systems for separable input processes. *Automatica*, 41(3):459–473, 2005

Papers at refereed scientific conferences

[C30] Y. Jung and M. Enqvist. On estimation of approximate inverse models of block-oriented systems. In *Proceedings of the 17th IFAC Symposium on System Identification*, pages 1226–1231, Beijing, China, October 2015

[C29] J. Linder and M. Enqvist. On indirect input measurements. In *Proceedings of the 17th IFAC Symposium on System Identification*, pages 104–109, Beijing, China, October 2015

[C28] J. Linder, M. Enqvist, T. I. Fossen, T. A. Johansen, and F. Gustafsson. Online estimation of ship's mass and center of mass using inertial measurements. In *Proceedings of the 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 2015

[C27] J. Linder, M. Enqvist, T. I. Fossen, T. A. Johansen, and F. Gustafsson. Modeling for IMU-based online estimation of a ship's mass and center of mass. In *Proceedings of the 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 2015

[C26] J. Linder, M. Enqvist, and F. Gustafsson. A closed-loop instrumental variable approach to mass and center of mass estimation using IMU data. In *Proceedings of the 53rd IEEE Conference on Decision and Control*, pages 283–289, Los Angeles, California, December 2014

[C25] M. Sadeghi Reineh, M. Enqvist, and F. Gustafsson. IMU-based vehicle load estimation under normal driving conditions. In *Proceedings of the 53rd IEEE Conference on Decision and Control*, pages 3376–3381, Los Angeles, California, December 2014

[C24] J. Linder, M. Enqvist, F. Gustafsson, and J. Sjöberg. Identifiability of physical parameters in systems with limited sensors. In *Proceedings of the 19th IFAC World Congress*, pages 6454–6459, Cape Town, South Africa, August 2014

[C23] Y. Jung and M. Enqvist. Estimating models of inverse systems. In *Proceedings of the 52nd IEEE Conference on Decision and Control*, pages 7143–7148, Florence, Italy, December 2013

[C22] M. Sadeghi Reineh, M. Enqvist, and F. Gustafsson. Detection of roof load for automotive safety systems. In *Proceedings of the 52nd IEEE Conference on Decision and Control*, pages 2840–2845, Florence, Italy, December 2013

[C21] M. Schoukens, C. Lyzell, and M. Enqvist. Combining the best linear approximation and dimension reduction to identify the linear blocks of parallel Wiener systems. In *Proceedings of the 11th IFAC International Workshop on Adaptation and Learning in Control and Signal Processing*, pages 372–377, Caen, France, July 2013

[C20] C. Lyzell, M. Andersen, and M. Enqvist. A convex relaxation of a dimension reduction problem using the nuclear norm. In *Proceedings of the 51st IEEE Conference on Decision and Control*, pages 2852–2857, Maui, Hawaii, December 2012

[C19] C. Lyzell and M. Enqvist. Inverse regression for the Wiener class of systems. In *Proceedings of the 16th IFAC Symposium on System Identification*, pages 476–481, Brussels, Belgium, July 2012

[C18] C. Lyzell and M. Enqvist. Sliced inverse regression for the identification of dynamical systems. In *Proceedings of the 16th IFAC Symposium on System Identification*, pages 1575–1580, Brussels, Belgium, July 2012

[C17] J. Escobar and M. Enqvist. On the detection of nonlinearities in sampled data. In *Proceedings of the 16th IFAC Symposium on System Identification*, pages 1587–1592, Brussels, Belgium, July 2012

[C16] R. Larsson and M. Enqvist. Sequential aerodynamic model parameter identification. In *Proceedings of the 16th IFAC Symposium on System Identification*, pages 1413–1418, Brussels, Belgium, July 2012

[C15] R. Tóth, C. Lyzell, M. Enqvist, P. S. C. Heuberger, and P. M. J. Van den Hof. Order and structural dependence selection of LPV-ARX models using a nonnegative garrote approach. In *Proceedings of the 48th IEEE Conference on Decision and Control held jointly with 2009 28th Chinese Control Conference*, pages 7406–7411, Shanghai, China, December 2009

[C14] M. Enqvist. Nonlinearity detection and impulse response estimation using a weighting approach. In *Proceedings of the 15th IFAC Symposium on System Identification*, pages 628–633, Saint-Malo, France, July 2009

[C13] C. Lyzell, T. Glad, M. Enqvist, and L. Ljung. Identification aspects of Ritt's algorithm for discrete-time systems. In *Proceedings of the 15th IFAC Symposium on System Identification*, pages 681–686, Saint-Malo, France, July 2009

[C12] C. Lyzell, M. Enqvist, and L. Ljung. Handling certain structure information in subspace identification. In *Proceedings of the 15th IFAC Symposium on System Identification*, pages 90–95, Saint-Malo, France, July 2009

[C11] R. Larsson, Z. Sjanic, M. Enqvist, and L. Ljung. Direct prediction-error identification of unstable nonlinear systems applied to flight test data. In *Proceedings of the 15th IFAC Symposium on System Identification*, pages 144–149, Saint-Malo, France, July 2009

[C10] M. Enqvist. A weighting method for approximate nonlinear system identification. In *Proceedings of the 46th IEEE Conference on Decision and Control*, pages 5104–5109, New Orleans, Louisiana, December 2007

[C9] M. Enqvist, J. Schoukens, and R. Pintelon. Detection of unmodeled nonlinearities using correlation methods. In *IEEE Instrumentation and Measurement Technology Conference Proceedings*, Warsaw, Poland, May 2007

[C8] M. Barenthin, M. Enqvist, B. Wahlberg, and H. Hjalmarsson. Gain estimation for Hammerstein systems. In *Proceedings of the 14th IFAC Symposium on System Identification*, pages 784–789, Newcastle, Australia, March 2006

[C7] M. Enqvist. Identification of Hammerstein systems using separable random multisines. In *Proceedings of the 14th IFAC Symposium on System Identification*, pages 768–773, Newcastle, Australia, March 2006

[C6] J. Roll, M. Enqvist, and L. Ljung. Consistent nonparametric estimation of NARX systems using convex optimization. In *Proceedings of the 44th IEEE Conference on Decision and Control and the European Control Conference*, pages 3129–3134, Seville, Spain, December 2005

[C5] M. Enqvist, S. Gunnarsson, M. Norrlöf, E. Wernholt, and A. Hansson. The CDIO initiative from an automatic control project course perspective. In *Proceedings of the 16th IFAC World Congress*, Prague, Czech Republic, July 2005

[C4] S. T. Glad, A. Helmersson, M. Enqvist, and L. Ljung. Controllers for amplitude limited model error models. In *Proceedings of the 16th IFAC World Congress*, Prague, Czech Republic, July 2005

[C3] M. Enqvist and L. Ljung. LTI approximations of slightly nonlinear systems: Some intriguing examples. In *Proceedings of the 6th IFAC Symposium on Nonlinear Control Systems*, pages 639–644, Stuttgart, Germany, September 2004

[C2] M. Enqvist and L. Ljung. Linear models of nonlinear FIR systems with Gaussian inputs. In *Proceedings of the 13th IFAC Symposium on System Identification*, pages 1910–1915, Rotterdam, The Netherlands, August 2003

[C1] M. Enqvist and L. Ljung. Estimating nonlinear systems in a neighborhood of LTI-approximants. In *Proceedings of the 41st IEEE Conference on Decision and Control*, pages 1005–1010, Las Vegas, Nevada, December 2002

Papers at other scientific conferences

[OC5] R. Larsson and M. Enqvist. Nonlinear aerodynamic modeling of unstable aircraft using flight test data. In *Proceedings of the 28th Congress of the International Council of the Aeronautical Sciences*, Brisbane, Australia, September 2012

[OC4] M. Enqvist, P. Rosander, and D. Petersson. Självständiga laborationer i reglerteknik. In *3:e utvecklingskonferensen för Sveriges ingenjörsutbildningar*, pages 35–38, Norrköping, Sweden, November 2011

[OC3] R. Larsson and M. Enqvist. Real-time aerodynamic model parameter identification. In *Society of Flight Test Engineers International Symposium*, Linköping and Stockholm, Sweden, September 2009

[OC2] L. Lauwers, J. Schoukens, R. Pintelon, and M. Enqvist. Nonlinear structure analysis using the best linear approximation. In *Proceedings of the International Conference on Noise and Vibration Engineering*, pages 2751–2760, Leuven, Belgium, September 2006

[OC1] M. Enqvist. Benefits of the input minimum phase property for linearization of nonlinear systems. In *Proceedings of the International Symposium on Nonlinear Theory and its Applications*, pages 618–621, Bruges, Belgium, October 2005

Other scientific contributions

[O1] M. Enqvist. Variance-bias tradeoff in finite impulse response estimates obtained by correlation analysis. Technical Report LiTH-ISY-R-2416, Department of Electrical Engineering, Linköping University, Linköping, Sweden, 2002

Patents

[P1] F. Gustafsson, P. Connman, O. Öberg, M. Enqvist, and N. Odelholm. A system and method for simulation of non-linear audio equipment. Patent no. SE525332, Pending patent no. EP1492081, US2004258250, JP2005020740, 2003