

## Discussion Session w. 44

---

- ▶ Topics for discussion session w. 44:  
**System Identification and Linear Parameter-Varying Models**

### Literature:

- ▶ Verdult, V., & Verhaegen, M.: Subspace identification of multivariable linear parameter-varying systems. *Automatica*, Vol. 38, No. 5, pp. 805–814, 2002.
- ▶ Tóth, R., Laurain, V., Zheng, W. X., & Poolla, K.: "Model structure learning: A support vector machine approach for LPV linear-regression models". In *Proc. Conference on Decision and Control and European Control Conference (CDC-ECC)*, Orlando, FL, pp. 3192–3197, 2011.
- ▶ Schön, T. B., Wills, A., & Ninness, B.: "System identification of nonlinear state-space models". *Automatica*, Vol. 47, No. 1, pp. 39–49, 2011.

## Discussion Session w. 44 (cont'd)

---

The thesis

- ▶ Tóth, R.: Modeling and Identification of Linear Parameter-Varying Systems, an Orthonormal Basis Function Approach, Ph.D. Thesis, ISBN: 978-90-9023742-8, Delft University of Technology, The Netherlands, 2008.

contains an overview of and methods for identification of LPV systems.

Simulation task:

- ▶ Implement an algorithm for identification of a linear parameter-varying (LPV) system. Then, simulate data from a LPV system of your choice and apply the implemented algorithm on this data set.