LMI OPTIMIZATION WITH APPLICATIONS IN CONTROL

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I.1. Technical background (linear algebra, numerical analysis)
I.2. What is an LMI? (historical survey, SDP)
I.3. LMI duality (Lagrangian, multipliers)
I.4. Convex LMI modelling (liftings and projections)
I.5. Nonconvex LMI modelling (relaxations)
I.6. LMI solvers (interfaces and algorithms)
II.1. State-space analysis methods
II.2. State-space design methods
II.3. Polynomial analysis methods
II.4. Polynomial design methods
Course material

Convex optimization (including LMI):
• A. Ben-Tal, A. Nemirovskii. www.isye.gatech.edu/~nemirovs
  Modern Convex Optimization. SIAM, 2001
• S. Boyd, L. Vandenberghe. www.stanford.edu/~boyd
  Convex Optimization. CUP, 2005

LMI solvers and interfaces:
• J. Löfberg’s YALMIP wiki
  www.control.isy.liu.se/~johanl

LMI in control:
• C. Scherer, S. Weiland.
  EECI graduate school on control