From data and structure to models and controllers

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Stellingen
behorende bij het proefschrift

From Data and Structure to Models and Controllers

van Henk van Waarde

1. The notion of informative data lies at the heart of data-driven analysis and control. *(Chapters 3-6)*

2. The matrix S-lemma asserts that one quadratic matrix inequality is implied by another one if and only if a linear matrix inequality is feasible. It can be successfully applied to analysis and control problems involving noisy data. *(Chapters 5 and 6)*

3. Generic (or weak structural) system properties are tricky in the sense that "for almost all" does not imply "in almost all situations".

4. It is important to exploit prior knowledge on the graph structure, when available, in the analysis of network identifiability. *(Chapters 9 and 10)*

5. Systems' structure can naturally be captured using pattern matrices. Strong structural properties such as controllability can be characterized completely in terms of such pattern matrices. *(Chapters 11 and 12)*

6. It's the questions we can't answer that teach us the most. They teach us how to think. If you give a man an answer, all he gains is a little fact. But give him a question and he'll look for his own answers. *Patrick Rothfuss*

7. If people do not believe that mathematics is simple, it is only because they do not realize how complicated life is. *John von Neumann*

8. Wenn ich des Tages nicht dreimal
   Mein Schälchen Coffee trinken darf,
   So werd ich ja zu meiner Qual
   Wie ein verdorrtes Ziegenbrätchen. *Johann Sebastian Bach*

9. When you see a good move, look for a better one.
   World Chess Champion Emanuel Lasker

10. One overestimates what one can do in a day, but underestimates what one can achieve in a year. *Unknown origin*