

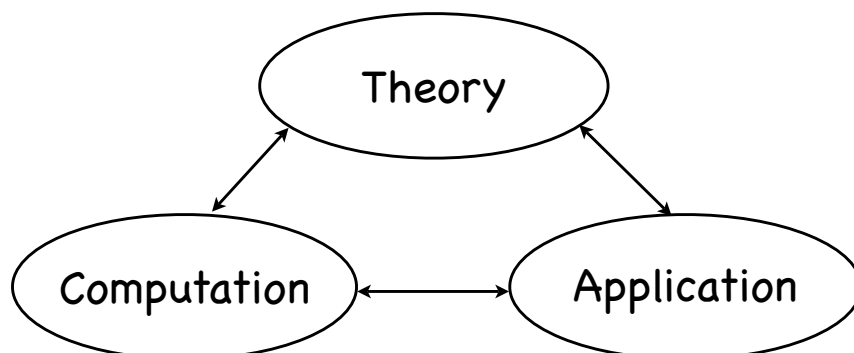
Personal Opinions on MPC and Hybrid Systems

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Impact =>
Comprehensive Viewpoint



cf. LQG: Kalman; H_∞: Zames, Doyle

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Valuation of Workshop Topics

- ⊗ Provide understanding and insight
- ⊗ Allow analysis of properties
- ⊗ Enable controller synthesis

Analysis vs. Synthesis

- ⊗ Analysis of large nonlinear complex systems is impossible. (Biology?)
- ⊗ Need to synthesize controller such that analysis of closed loop system is possible / trivial
- ⊗ MPC will become ever more dominant as control synthesis technology (cf. Honeywell, ABB)

Computation

- ⊗ On-line vs. off-line MPC: no choice for most applications
- ⊗ Computational complexity assessment
 - ⊗ on-line: worst case
 - ⊗ off-line: average

Computation

- ⊗ Improvements must be at least by factor 10
- ⊗ Beware of tools for reduction of computational complexity without application
- ⊗ Numerical robustness is critical but very hard to achieve
- ⊗ Build on available tools as much as possible

