

# Online control of lab pond setup - reduce control period

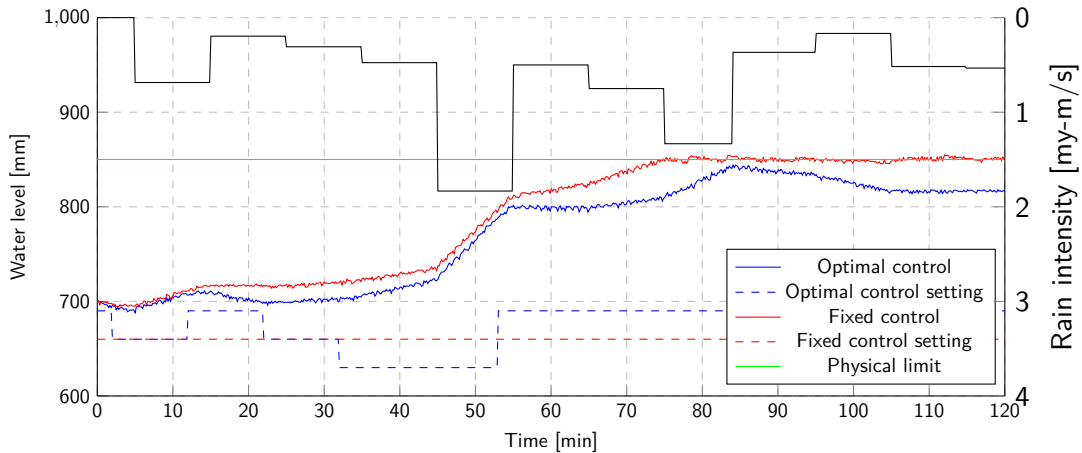
## Experiment design and results

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## Experiment design

- Online control: i.e., a strategy is synthesized periodically where the model is re-calibrated to the latest water level sensor reading.
- Experiment duration: 120 minutes.
- Rainfall data: first 120 minutes of the data.
- Initial water level: 700 mm.
- Physical water limit of setup: 850 mm.
- Duration single control period: 10 minutes.
- Optimization cost function:  $\min \mathbb{E}(\alpha o + s)$ , where  $o$  is the accumulated overflow duration and  $s$  the particle sedimentation; weight  $\alpha = 10,000$ .
- Fixed outflow is setting 2 (approx. 50% of pump capacity).
- Learning budget parameters: `–good-runs 100 –total-runs 150 –runs-pr-state 100 –eval-runs 100`
- Discretization: 0.03.

## Experimental results



## Comparison cost functions

