

# Online control of lab pond setup - reduce control period

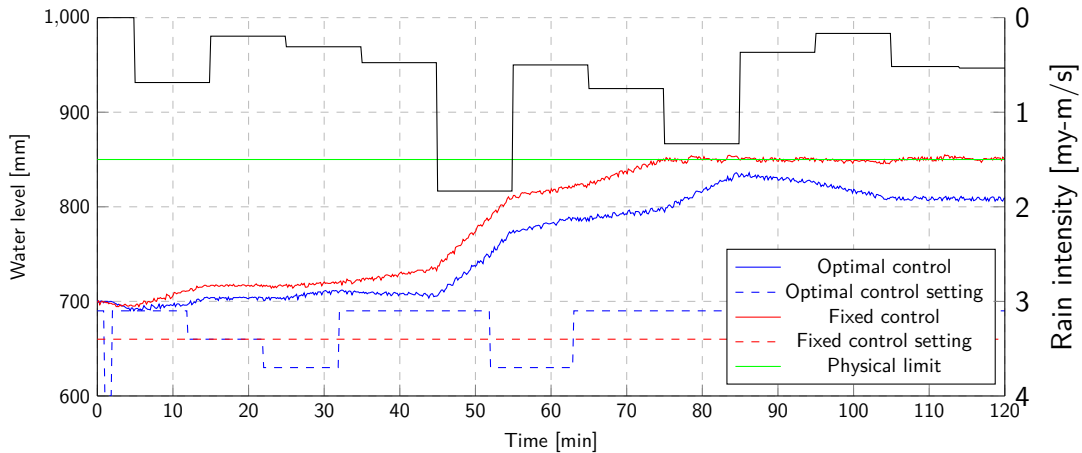
## Experiment design and results

September 23, 2023

## 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** (reduced from 20 minutes).
- Optimization cost function:  $\min \mathbb{E}(o)$ , where  $o$  is the accumulated overflow duration.
- 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 with 20 minutes control period

