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A Stochastic Dynamic Programming Approach for Delay Management of a Single Train Line

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Highlights

- A multi-stage stochastic dynamic program (SDP) for delay management is developed.
- Empirically supported distributions of uncertain future delays can be incorporated.
- The approach explicitly accounts for future recourse options in a look-ahead manner.
- The SDP policy is more effective than common strategies in nearly all scenarios we tested.
- State space reduction allows to derive a high-quality policy ex ante in reasonable time.

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