

# **Remanufacturing Planning with Uncertain Parameters**

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## **Abstract**

We consider the problem of remanufacturing planning in the presence of statistical estimation errors. We model this problem as a robust Markov decision process, where the true system transition probability is assumed to be unknown but lie in an interval-based uncertainty set. We establish structural properties of optimal robust policies under this uncertainty set. A computational study on the NASA turbofan engine shows that our data-driven decision framework consistently yields better worst-case performances and higher reliability of the performance guarantee.

## **Keywords**

Uncertain Parameters, remanufacturing, Markov decision