The Probabilistic Travelling Salesman Problem with Time Windows

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We introduce the Probabilistic Traveling Salesman Problem with Time Windows (PTSPTW), where in addition to stochastic customer presence, each customer has an associated time window during which deliveries must be made. We present a recourse model and a Variable Neighborhood Search (VNS) algorithm to solve problem instances. Using computational experiments, we demonstrate the value of incorporating stochasticity into the model.