

## Preparation

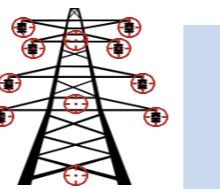


Raw Point Cloud Data

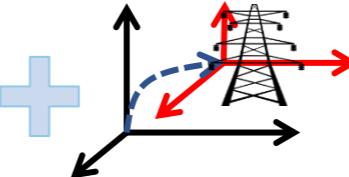


Historical Inspection Record

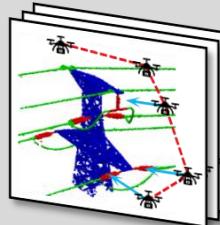
## Section 4.1 Expertise-Driven Task Modeling



Inspection Target Identification

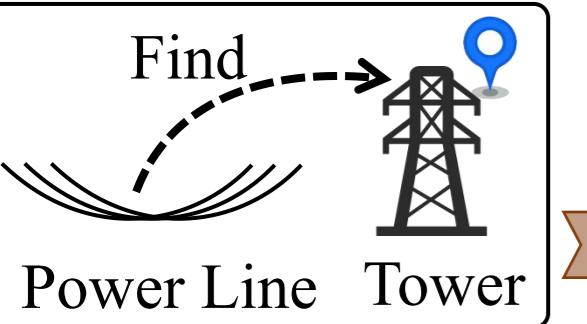


Coordinate Normalization

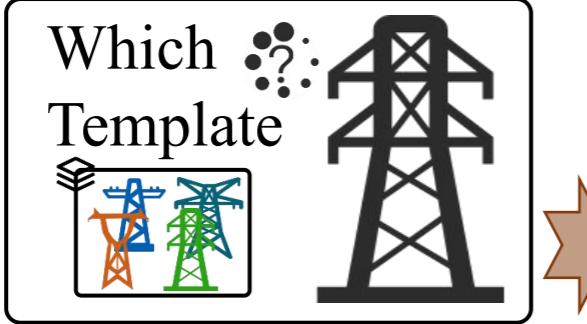


Knowledge Base

## Section 4.2 Geometry-Centric Plan Generation



Heuristic Line Modeling

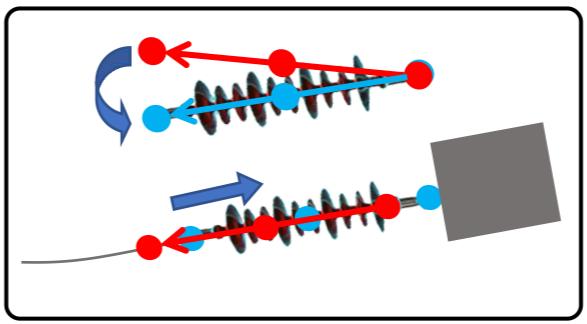


Template Matching

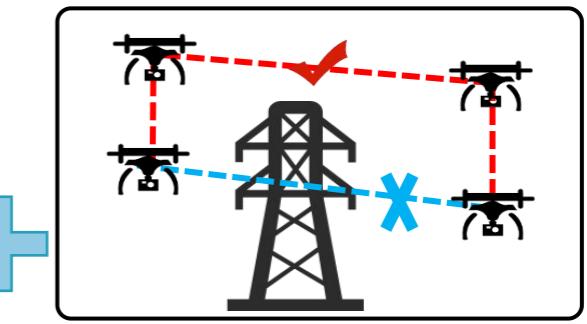


Initial Plan

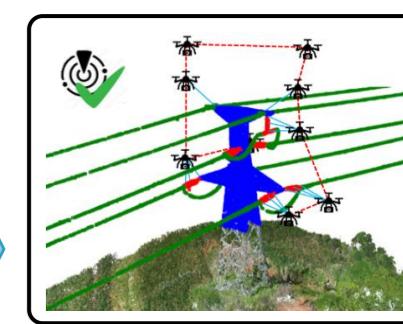
## Section 4.3 Deployment-Adaptive Trajectory Optimization



Optimization Target Points



Optimization Safety



Inspection Trajectory