

MTG: Mapless Trajectory Generator with Traversability Coverage for Outdoor Navigation

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Motivations

- Traversability is hard to estimate in complex outdoor environments, so it's better to estimate it empirically.
- It's hard to efficiently generate effective trajectories to cover all traversable areas in the robot's vicinity. Therefore, diversity can be introduced to trajectory generation.

Innovations

- Decompose the embeddings of Conditional Variational Autoencoder (CVAE) to different orthogonal vectors for diverse trajectory generation.
- Estimate the confidences of the trajectories by using the covariance of the Gaussian distributions of the trajectories.

