

1. Offline Motion Planning

Contact Sequence

Constraints

Whole-Body
Trajectory Optimization

$$\mathbf{X}^*, \mathbf{U}^* = \arg \min_{\mathbf{X}, \mathbf{U}} \sum_{k=0}^{N-1} l_k(\mathbf{x}, \mathbf{u}).$$

2. Online Stabilization

Trajectory
File

$(\mathbf{q}, \dot{\mathbf{q}}, \ddot{\mathbf{q}})_{\text{des}}$



Task Space
Inverse Dynamics

$\mathbf{u}, \dot{\mathbf{u}}, \boldsymbol{\tau}_u$

Low-Level
Actuator Control

$(\mathbf{q}, \dot{\mathbf{q}})_{\text{meas}}$

