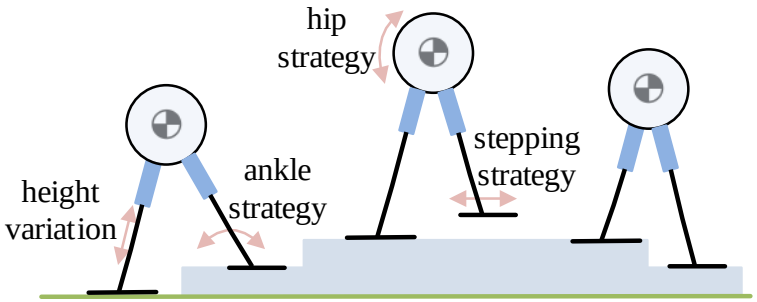
# Versatile Locomotion by Integrating Ankle, Hip, Stepping, and Height Variation Strategies

Jiatao Ding[1], Sonyan Xin[2], Tin Lun Lam[1,3], Sethu Vijayakumar[1,2]
1. Shenzhen Institute of Artificial Intelligence and Robotics for Society, China
2. School of Informatics, University of Edinburgh, United Kingdom
3. The Chinese University of Hong Kong, Shenzhen, China

- Ankle, stepping, hip, and height variation strategies are integrated into an enhanced NMPC framework
- CoP and DCM movements are both controlled for maintaining stability
- Versatile walking is demonstrated on the robot with finite-sized or point feet




Multiple balance strategies for versatile walking