Enabling Robust and User-Customized Bipedal Locomotion on Robotic Assistive Devices via Hybrid System Theory and Preference-Based Learning

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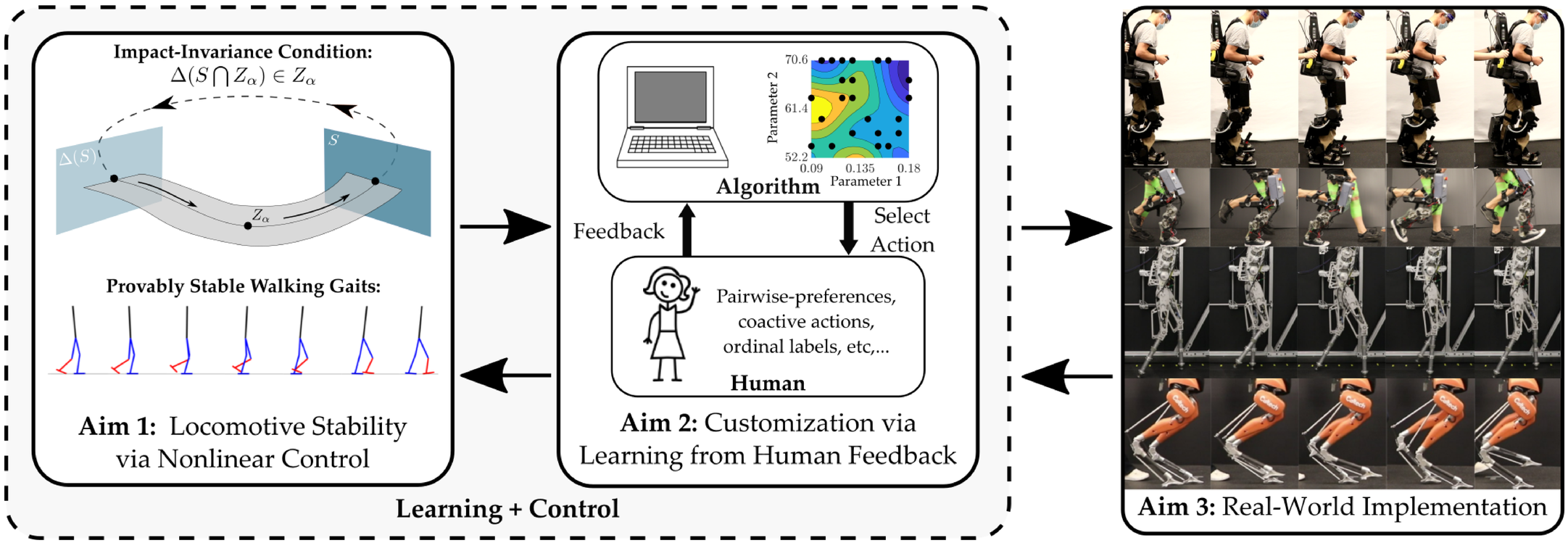
My research philosophy is to unify tools from **nonlinear control theory** and **machine learning** to experimentally realize complex **robotic behaviors in the real world** for the purpose of systematically **translating robotic-assisted locomotion to clinical settings.**



Broader Impact (Impact on Society)

Benefits associated with standing and walking for people with complete motor paraplegia include pressure relief and increased circulation

Broader Impact (Education/Outreach)

Research involving assistive devices is of particular interest to undergraduates. To date, I have worked with 11 undergraduates on the development of lower-body exoskeleton technologies.

Broader Impact (Intellectual Merit)

Few lower-body assistive technologies rely on the controller for locomotive stability due to the difficulty in achieving bipedal stability on robotic platforms.