基礎研究

N16　脳情報科学

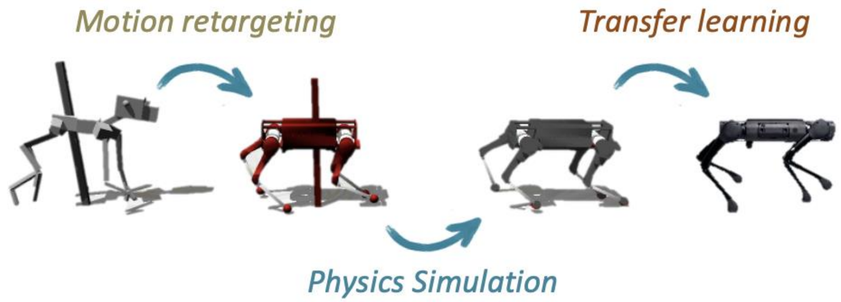
Real-Sim-Real Learning for Robot Control
～A Model-Based Transfer Learning Approach～

概要

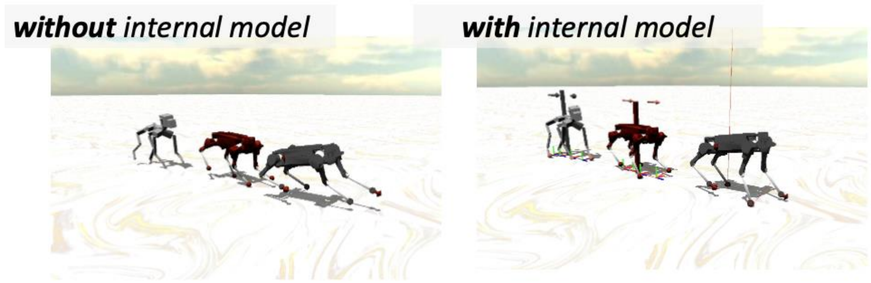
This study aims to build a bridge between the real and the virtual world so that a robot can learn like a human. For this, we divide it into three subproblems; motion retargeting, physics simulation, and transfer learning. To handle these problems, we utilize the internal model, so as to inherit the characteristics of the real animal.

特徴

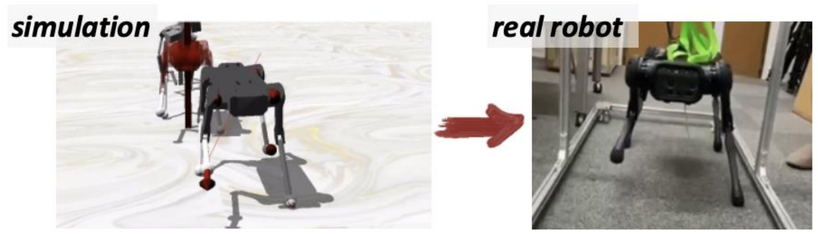
- **Motion retargeting** considers kinematical deviation between the human and the robot by matching their skeletal features.
- **Physics simulation** provides the reference motions while satisfying the physical constraints.
- **Transfer learning** provides a wide variety of robot controls based on the experiences, acquired from the physics simulation.



Internal model-based Real-Sim-Real



Comparison of using Internal model



Real robot control from Simulation

今後の展開

- As it is ongoing work, the overall framework is not established perfectly, yet. Especially in the case of the learning module, we plan to test learning model candidates that guarantee the performance of the final result.

テーマ「ともに究め、明日の社会を拓く」との関連

- Tackling *exploratory and social* Sim2Real approach
- *Innovation* that helps people's daily live from *research perspective*
- *Collaboration* work with Kyoto University

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