VIDEOMIMIC VISUAL IMITATION ENABLES CONTEXTUAL HUMANOID CONTROL

Tech ID: 34325 / UC Case 2026-052-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

A system for training robots leverages monocular red-green-blue videos to streamline behavioral learning in humanoid systems. Developed by UC Berkeley researchers, this platform utilizes one or more processors configured to recover three-dimensional human motion geometry and scene geometry from standard video recordings over time. The system then retargets this recovered motion directly to a humanoid robot and trains a reinforcement learning policy. This process produces a unified policy that allows the robot to autonomously execute complex behaviors in various real-world contexts, bypassing the need for expensive motion-capture setups or tedious manual programming.

SUGGESTED USES

- Training autonomous humanoid robots for manufacturing and warehouse logistics tasks using standard video demonstrations
- Developing reinforcement learning policies for robotic assistive devices in healthcare and rehabilitation environments
- Retargeting human movements for character animation and physics-based control in virtual reality environments
- Programming search and rescue robots to navigate complex disaster scenes based on recorded human traversal geometry
- Enhancing consumer robotics capabilities through vision-based imitation learning systems in domestic settings

ADVANTAGES

- Eliminates the need for specialized motion-capture suits or complex multi-camera setups by utilizing standard monocular videos
- Captures both human motion geometry and background scene geometry over time to provide contextual awareness for the robot

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INVENTORS

- Kanazawa, Angjoo

OTHER INFORMATION

CATEGORIZED AS

- **Computer**
  - Software
- **Engineering**
  - Robotics and Automation

RELATED CASES

2026-052-0

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Produces a single unified policy capable of executing diverse and adaptive behaviors through robust reinforcement learning

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Simplifies the motion retargeting pipeline to smoothly transfer human kinematics to humanoid robotic structures

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Reduces the time and technical expertise required to program complex physical behaviors in advanced robotic platforms

RELATED MATERIALS

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