



RobotSketch: A Real-Time Live Showcase of Superfast Design of Legged Robots

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1 Abstract

Soon, many robots equipped with AI capable of providing valuable services will appear in people's lives, much like the Cambrian explosion, but for robots. However, until now, robots have been developed primarily from a technical perspective, such as sensing, locomotion, and manipulation, but to become truly successful products, they will require a proper product design process, similar to that of the automotive industry.

With *RobotSketch* [Lee et al. 2024] (Figure 1), we show that such is possible for the robotics industry and highlight the growing importance of future-oriented robot design tools. These new tools can help robot designers explore and develop a wide range of alternative shapes, structures, and movements of robots in a short period during the early stages of design, and enhance the services and experiences that the robots can offer.

RobotSketch has been made possible by the recent development of three key technologies. First, a 3D sketching technology that enables the quick and easy creation of shapes and structures of robots using intuitive pen and multi-touch gestures [Lee et al. 2022].

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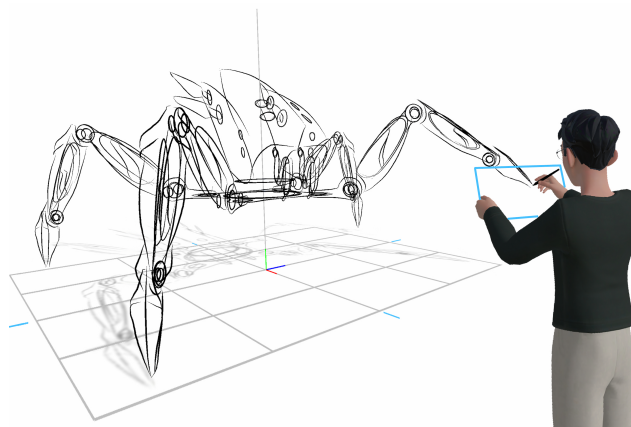


Figure 1: RobotSketch: A Real-Time Live Showcase of Superfast Design of Legged Robots

Second, a VR technology that enables the use of a tablet device as a transparent window for 3D sketching in an immersive workspace [Lee et al. 2023]. Third, an AI technology that enables the fluent locomotion skills of robots through reinforcement learning in a physics simulation [Hwangbo et al. 2019].

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