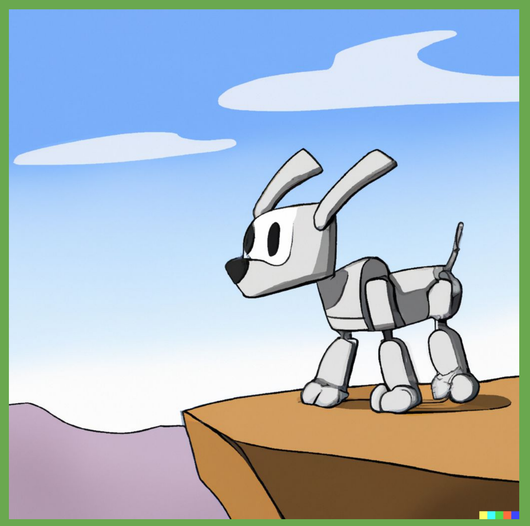
Tactile feet keep walking robots **safe** in challenging terrains



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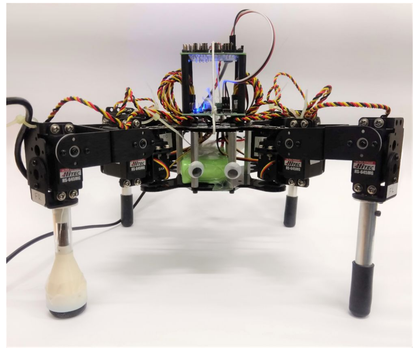
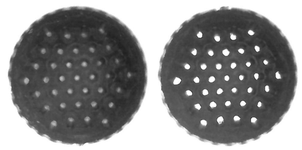
Feet that Feel

High resolution sensing of the ground under the feet for **quadruped** robots.



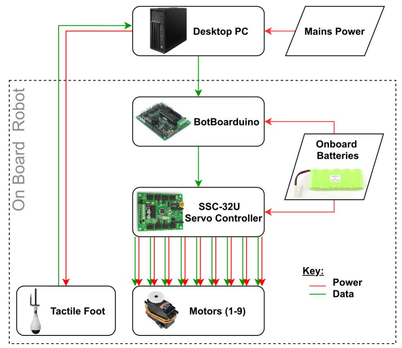
TacFoot Design

Adapted **TacTip** [2], with **novel lighting**, sleeker casing and more **modular** components.



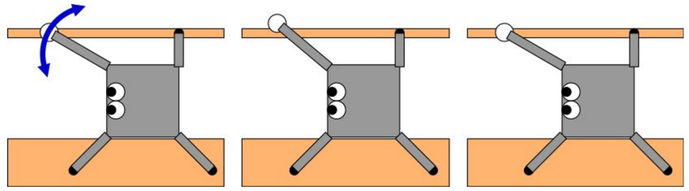
Old Pins **New** Pins

Robot Components



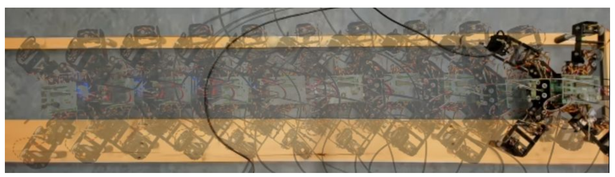
Task - Edge Following [1]

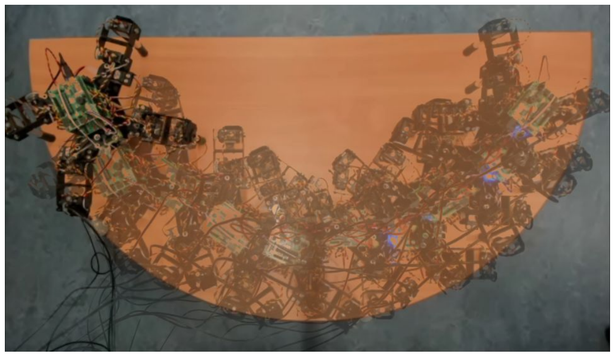
Follow the edge of a **raised path** to prevent the robot **falling** off the path. Use **only tactile feedback** to chose footholds and adjust direction of travel.



Use **online learning** [1] to quickly build model of how tactile sensor data relates to the world.

Results





[1] Stone, E. A., Lepora, N. F., & Barton, D. A. W. (2020). "Learning to Live Life on the Edge: Online Learning for Data-Efficient Tactile Contour Following". *Intelligent Robots and Systems (IROS)*.

[2] Ward-Cherrier, B., et al. (2018) "The tactip family: Soft optical tactile sensors with 3d-printed biomimetic morphologies." *Soft robotics* 5.2 : 216-227.