

Viki Humanoid: Towards an Integrated Approach

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Our goal is to develop techniques and a work methodology that allow conceiving and building robots, and more in general artefacts, with an integrated approach. This is due to different reasons. First of all, we believe that such an approach is economically advantageous, more efficient, faster, and leads to new design attitudes and “state of mind” with respect to an engineering point of view. In contrast to the top-down approach of equipping a humanoid with as many sensors, motors, power, etc. as possible, we developed a bottom-up approach to the construction of humanoids – an approach that attempts to minimize the robot complexity. For the development of the bottom-up approach we find inspiration from recent work in embodied artificial intelligence that puts emphasis on the correspondence and interrelatedness between material, electronic hardware, energy use, and control. Indeed, the Viki humanoid robots were able to win the world championship though they include much less sensors, motors and energy use than their competitors.