Biped Walking with Robots and Exoskeletons: Marching Towards Bionic Gait

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Biped exoskeletons with an appropriate control can assist the wearer to walk properly. Nevertheless, it is unclear how to define the best controller to interact with humans. Many control models or robots are based on central pattern generators (CPG), either symmetrical or, as proposed more recently, asymmetrical. Another problem is the stability of bipedal gait, a problem easily solved by humans that can be difficult for biped robots. While it is not possible to determine how biological biped systems guarantee stability, robot solutions can be useful to propose new hypotheses for biology. In this context, the interaction between humans and exoskeletons is very important for assistive or functional recovery exoskeletons and can bring new ideas about the control of human gait.

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