Building a robot to mimic plants

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Many of us probably picture robots as roughly human-shaped - as seen in countless science fiction films - or perhaps as little more than mobile computers. But one EU-funded project is taking inspiration from the smart, efficient strategies of plants in order to develop a new generation of robots and ICT technologies, such as sensing or distributed adaptive intelligence.

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In particular, plant roots are excellent natural diggers, points out Dr Barbara Mazzolai of the Center for Micro-BioRobotics at the Istituto Italiano di Tecnologia (IIT), the coordinator of the project. The characteristics of roots - such as adaptive growth, energy-efficient movements, and their ability to penetrate soil at any angle - are interesting from an engineering perspective, she says.

In fact, owing to their sessile lifestyle, plants have evolved the ability to respond to a wide range of signals and efficiently adapt to changing environmental conditions. Plant materials are optimised to reduce energy consumption during motion and these capabilities offer a plethora of solutions for the world of robotics, using approaches that are muscle-free and thus not necessarily animal-like.

Research*eu results magazine asked Dr Mazzolai to tell us more about her work in the PLANTOID project.

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