

## Robot Dance

Written by Mišel Brezak  
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We are proud to present our new RoboDance edutainment module. Yes, it's true - our soccer robots now can dance as well. The module was developed during academic year 2008/09 by students Vanja Smailović and Mijo Čikeš under supervision of Mišel Brezak. Finally we have prepared some nice video demonstrations; one of them can be seen bellow.

The whole RoboDance package contains Matlab application for creating dance choreography, and C++ module for executing the choreography.

The main purpose of the Matlab application is a design and simulation of choreography for our robot dancers. The problem is actually how to create trajectories for instantaneous motion of multiple robots without collision, which are visually pleasant and synchronized with the music. Trajectories produced by the application consist of straight lines and circular arcs. The Matlab application was developed by Vanja Smailović and Mijo Čikeš.

C++ module serves for execution of the choreography and is embedded into robot soccer application. This module ensures that robots actually track the created trajectories. For this, we use nonlinear trajectory tracking controller for nonholonomic systems. For reproduction of the music a wxMedia class that is part of wxWidgets library was used. C++ RoboDance module was developed by Mišel Brezak.

Until now we have two choreographies that try to reproduce an old dance originating from south Croatia called Lindo. Special thanks to Vanja Smailović for creating both choreographies. The above choreography video was also demonstrated during opening ceremony of European Conference on Mobile Robots ( [ECMR'09](#) ) that took part in Mlini/Dubrovnik-Croatia in September 2009.

To find out more about robot dance, follow this link: [ [Robot Dance](#) ] (web site in Croatian created by Vanja Smailović).