

## **Courses on Robotics by Guest Lecturing at Balkan Countries**

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Understanding grows with active commitment: To "do" something, to master it, leads to a deeper understanding. Experiencing with own experiments is of course an important prerequisite for studies in Robotics and Artificial Intelligence. Simulated robots in simulated environments can be used as an alternative for complex hardware.

RoboNewbie is a basic framework for experiments with simulated humanoid robots developed at Humboldt University Berlin. It provides interfaces to the simulated sensors and effectors of the robot, and an appropriate control structure. The framework and the examples are implemented in JAVA with detailed documentations and explanations. That makes it useful even for beginners in Robotics.

RoboNewbie runs in the soccer simulation environment of the official RoboCup 3D simulator. The simulated soccer players are models of the humanoid Robot NAO. Thanks are due to the RoboCup community for continuous help and inspiration. Besides other examples, a simple soccer playing robot demonstrates the architecture and the features. Users are encouraged to extend it by different means, to develop their own methods for perception, create new motions, write programs for control, and experiment with strategies for collective behavior.

Since 2012, the framework was used during Robotic courses in different Balkan Countries. Students could make experiences in Robotics and AI as well as in programming in an agent oriented style. At the same time, the RoboNewbie framework was extended and improved according to the work and ideas of the students.