# On B-Human's Code Releases in the Standard Platform League – Software Architecture and Impact

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**Abstract.** In RoboCup, source code releases after a competition are one important part of the competition's overall progress. In particular teams in the Standard Platform League can strongly benefit from other's software, as everybody shares the same robot platform. Therefore several releases by different teams exist. In this paper, we describe the past code releases of our team B-Human, particularly focusing on its underlying software architecture, which is set in relation to concepts of the currently popular Robot Operating System (ROS), as well as on its impact on the league's progress.

## 1 Motivation

B-Human started as a team in the Humanoid League. We adapted the German-Team framework for our Bioloid-based robots [10] before we switched to the Standard Platform League (SPL) in 2009 and thereby to the NAO. Our history in the Humanoid League gave us a certain advantage in the Standard Platform League, because our main weakness in the Humanoid League was the robot hardware, which – in contrast – is identical for all teams in the SPL. B-Human won all official games it played so far except for the final in RoboCup 2012. As a result, the team won the RoboCup German Open five times (2009–2013) and the RoboCup World Championship three times (2009, 2010, 2011). Although code releases are not mandatory in the SPL, B-Human has been releasing its software since the league started to use the NAO as standard platform in 2008 [11] at `www.b-human.de/publications`. We believe that providing software as Open Source is the best way to foster research and push a RoboCup league forward.

The remainder of this paper is as follows: Section 2 presents the technical aspects of the B-Human framework which are compared to the popular Robot Operating System in the following Section 3. The impact of the B-Human code releases is described in Section 4. Finally, the paper is concluded in Section 5.

## 2 B-Human's Software Framework

B-Human's software framework is based on the framework of the GermanTeam in the Four-Legged League [10]. The GermanTeam was a joint team of four (later