

# Oriole

## A Parametric Solution for Animation-Based Robotic Motion Design

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**Abstract.** This paper presents a project-based research study using Oriole—a custom-made plug-in for robotic motion control solutions in grasshopper 3D visual programming environment. Oriole is a parametric tool that enables users/designers to design robotic motion-paths, based on the notion of keyframing and animation. Using Oriole, designers are able to simulate—and ultimately develop robotic movements in more intuitive free-form ways.

Using Rhino 3D as a digital modeling platform and Grasshopper 3D and its robotic simulation platforms for different industrial robots such as KUKA, ABB, and Universal, Oriole enables designers to create a precise interaction between the robot, its spatial “performance” and the physical environment through animation.

**Keywords:** Robotics, Parametric Design, Human-Computer Interaction