URDF Creator:

Bridging the Gap Between Learning and Applying ROS 2

Mark Soulier

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The Robot Development Lifecycle

Design

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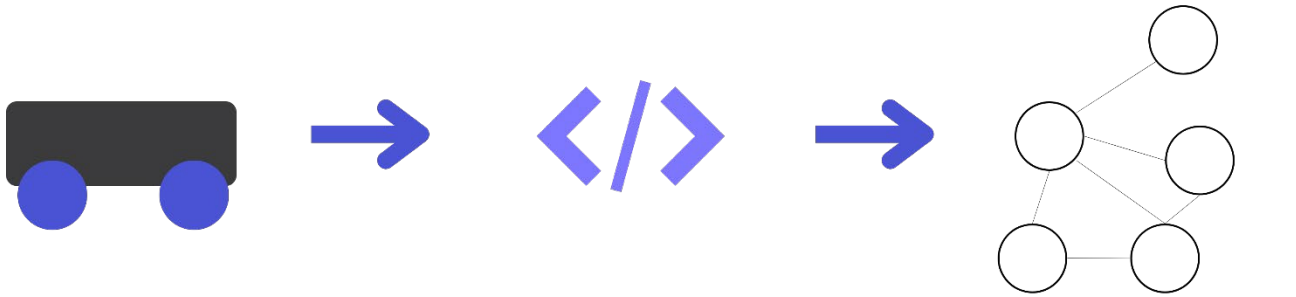
The Robot Development Lifecycle

Design

Software Define

The Robot Development Lifecycle



Design

Software Define

Development

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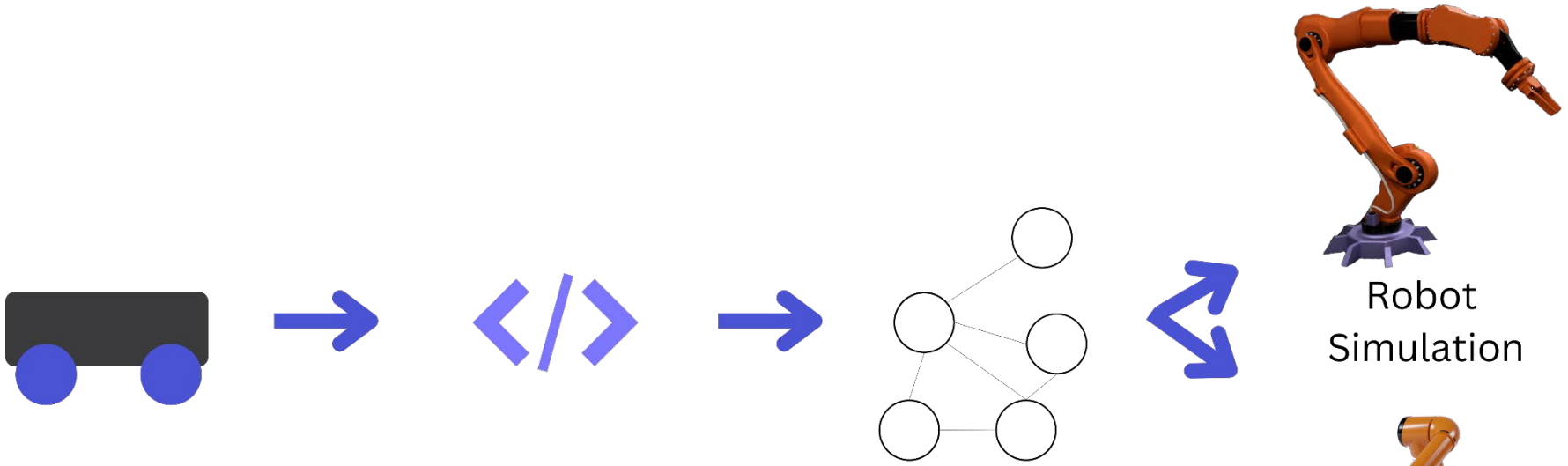
The Robot Development Lifecycle



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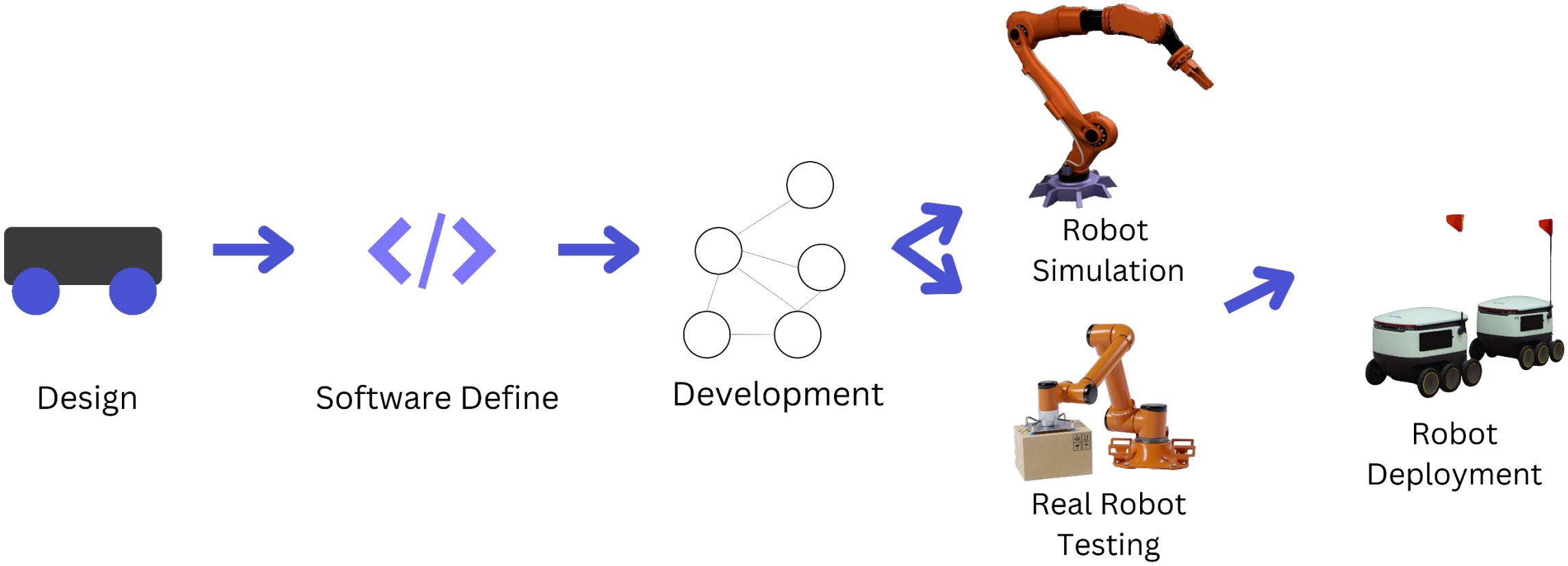
The Robot Development Lifecycle



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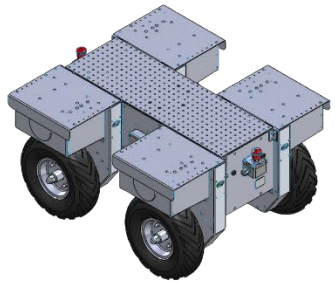
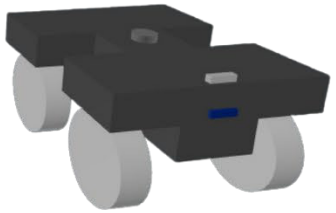
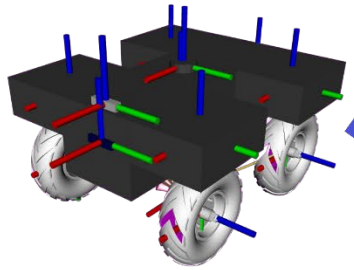
The Robot Development Lifecycle



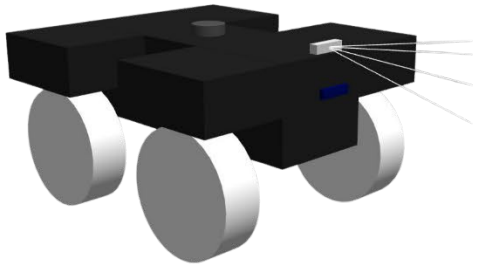
Design



Software Define



Development



Robot Simulation

Real Robot Testing

Robot Deployment

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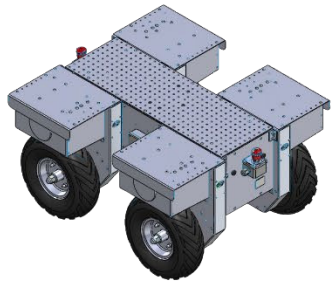
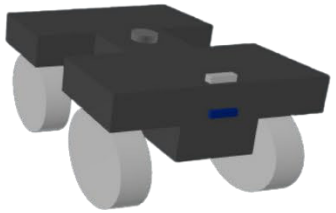
The Robot Development Lifecycle

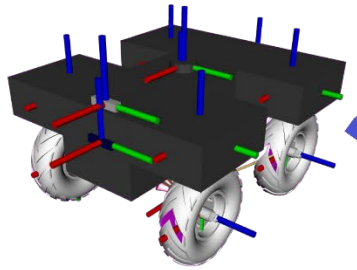


Design

URDF Creator



Software Define



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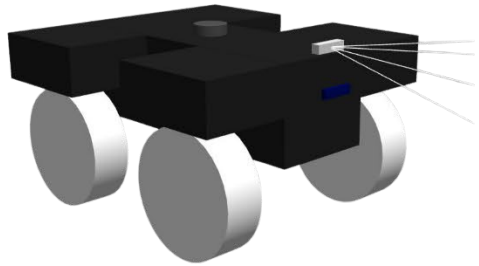

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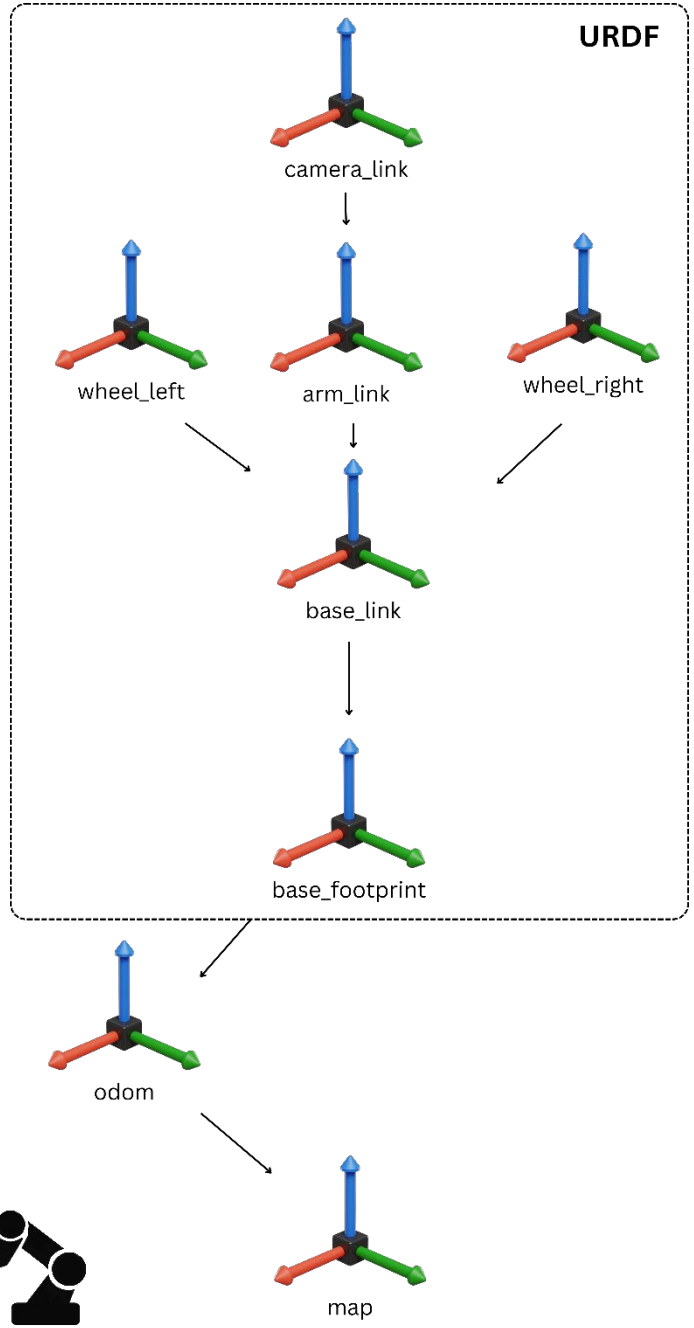
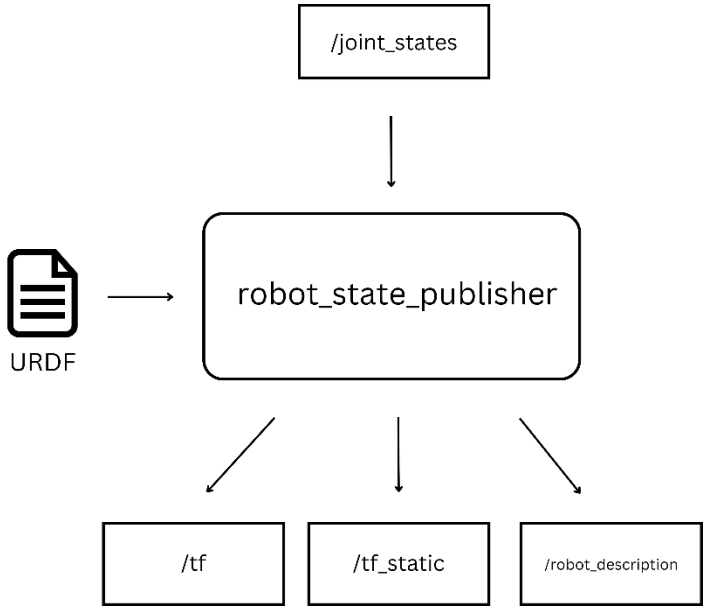
The Heart of the robot:
ROS 2 Transformation Tree



URDF File

```
<robot>
  <link name="base_link"/>
  <link name="arm_link"/>

  <joint>
  </joint>
</robot>
```



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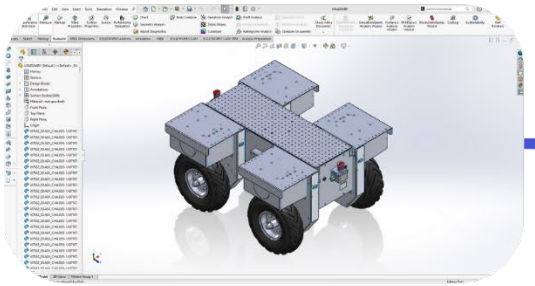
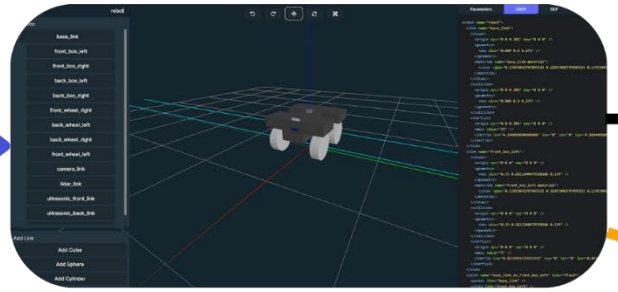
CAD Modeling Software



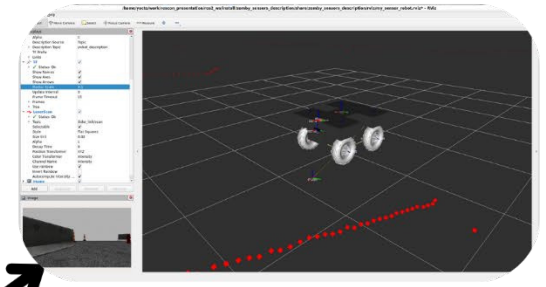
CAD Files

URDF Creator



ROS 2 Description Package

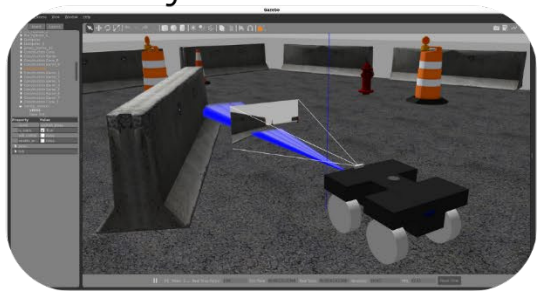
Rviz



Robot

ROS 2 Simulation Package

Physics Simulator



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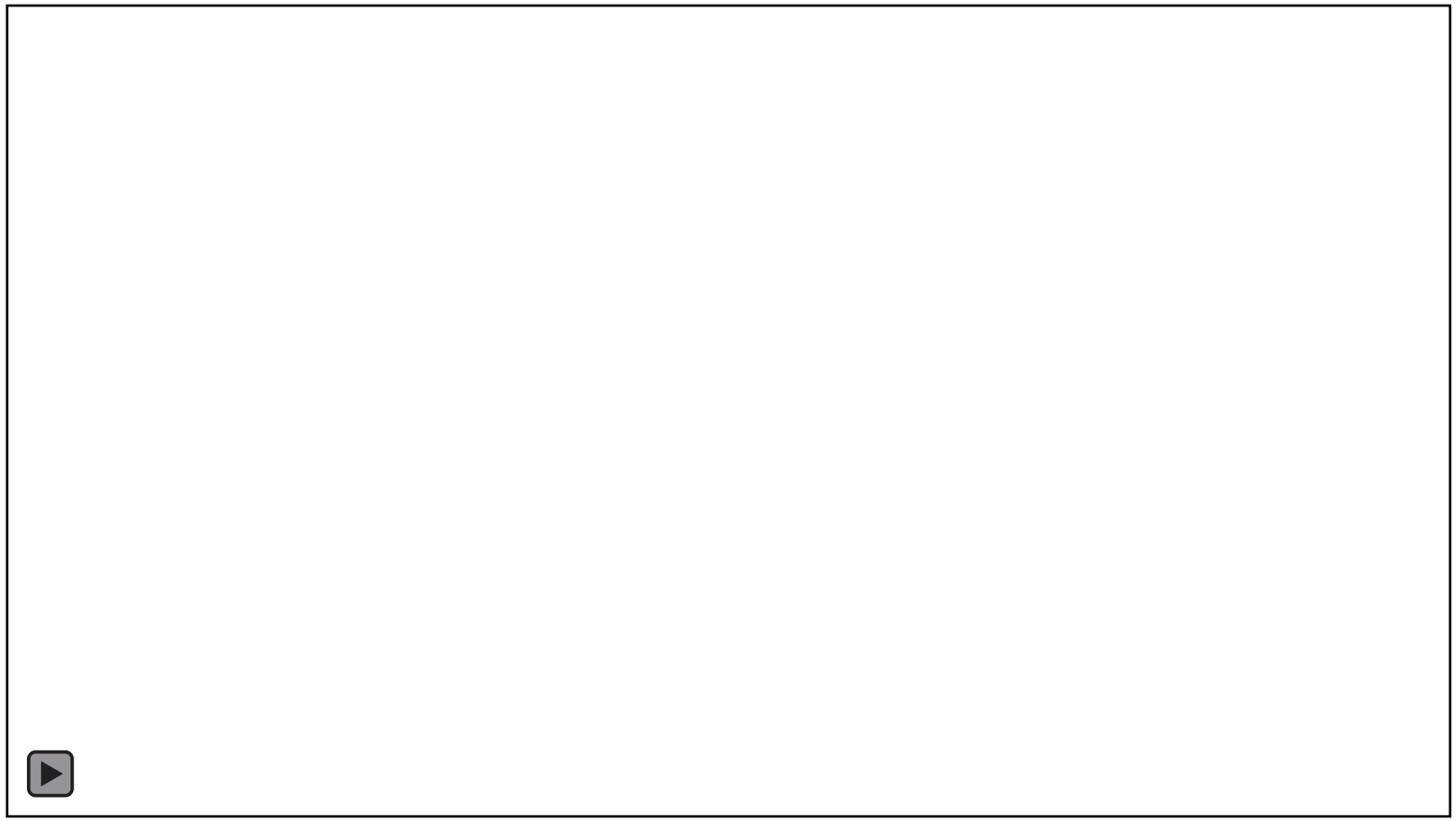
The URDF Creator

- CAD-like tool
- Define frames and their properties
- Define, reorganize transformation tree structure
- Visually create and test joints, links, and sensors
- Verify and export robot model files (URDF, SDF, XACRO)



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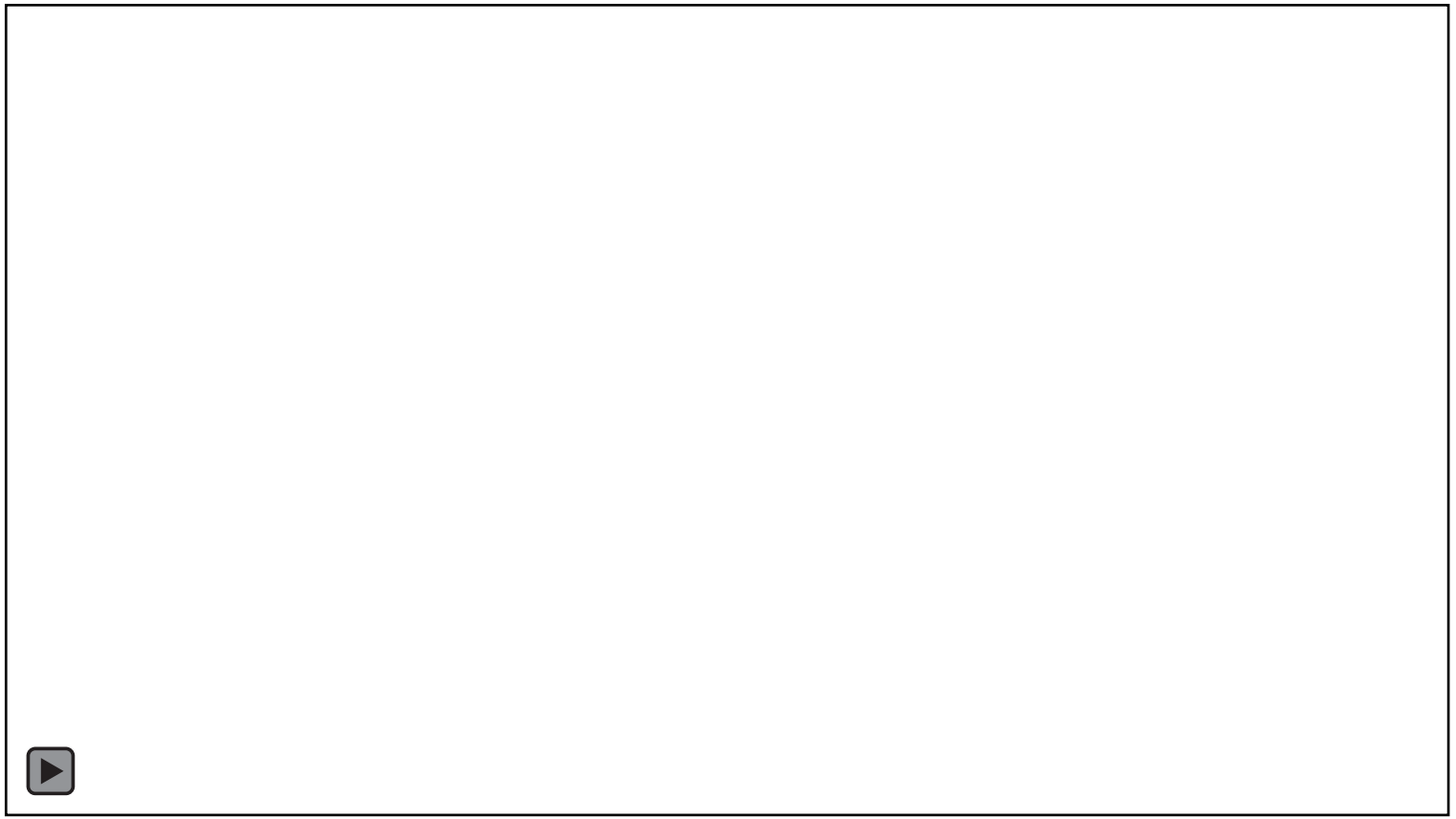
The URDF Creator

- Translate, Rotate, and Scale each Link
- Define sensor specifications for simulation
- Define axes of rotation
- Define link and joints kinematics and dynamics
- Automatically calculated Inertia matrix



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The URDF Creator

Import

- STL and DAE CAD meshes
- Publicly available robot models
- Locally saved robot model
- Common sensors

Export

- ROS 2 Description Package
- ROS 2 Simulation package to Gazebo and other high-fidelity simulators
- Locally saved robot model
- URDF, SDF, XACRO, USD

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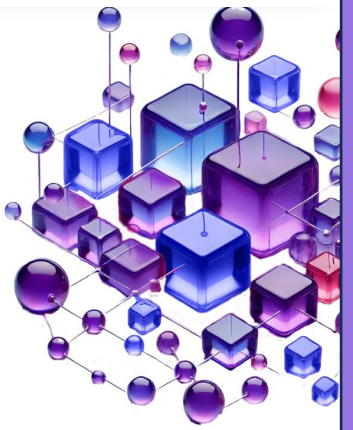
www.RoboEverything.com

- Robot modeling standards and examples
- Community documentation on robot setup
- Database of public models and sensors

RoboEverything

Beautiful developer tools for ROS2



Join Beta Group

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