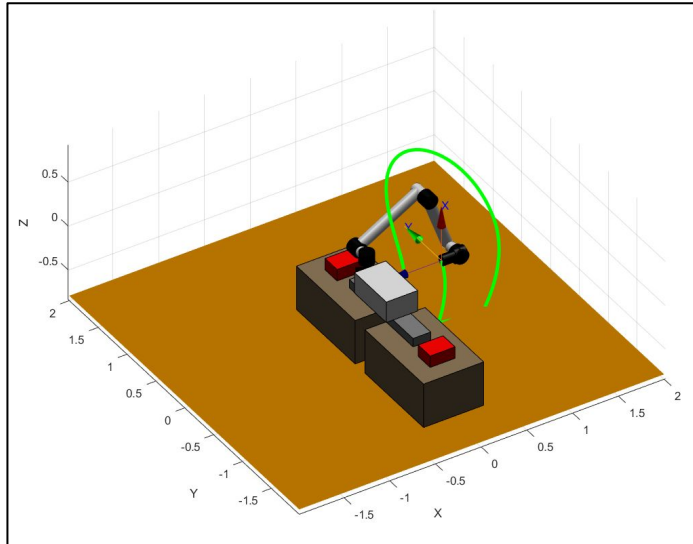


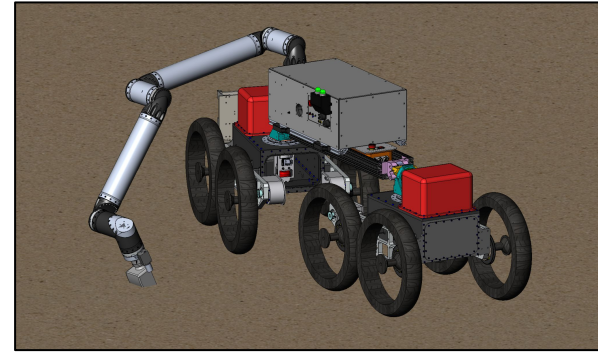
# Erik Kramer | Portable ISAM Robotic Arm Testbed

**Project** → An untethered reconfigurable robotic testbed for in-space servicing assembly and manufacturing development

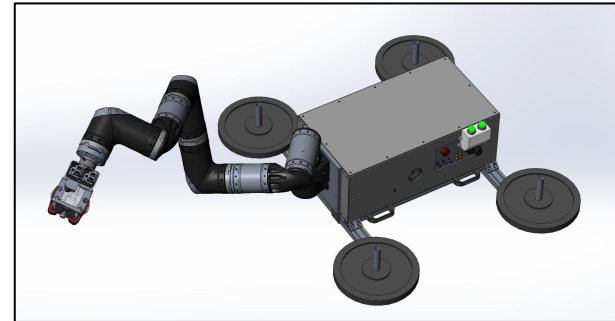
**Tasks** → Defining requirements, **arm design** and **analysis**, avionics **housing** design, **control software** development



**Kinematic Analysis Driven Arm Design**



**Reconfigurable Design Approach**



# Erik Kramer | Portable ISAM Robotic Arm Testbed

## Objectives

- Build an ISAM robotic arm testbed capable of digging and manipulation both when stationary and on a rover
- Design a new digging arm that can effectively collect soil while mounted atop a robotic rover
- Create a base to house avionics and mechanically support different arms

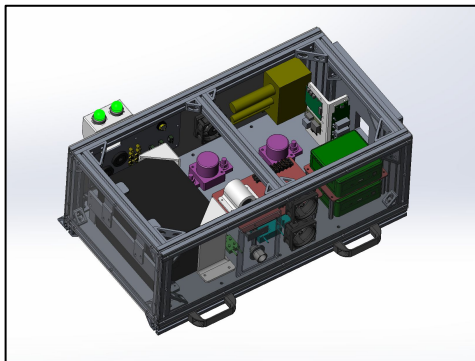
## Process

- Utilized **MATLAB** to model arm candidates and select a design
- Employed **SolidWorks** to design new components to interface with existing heritage hardware
- Designed **housing** for electronics and deployed in-house software for **arm control**

## Results

- Produced a physical testbed that can be configured with two different arm types and can be used as a stand alone system or on a rover
- Created an arm controller capable of joint space and cartesian moves

## Harness Routing Aware Avionics Configuration



## Assembly/Build and Testbed Bring-up

