Evaluation of Virtual RCM for MIS

- Minimally invasive surgery (MIS) imposes a remote center of motion (RCM) constraint at the trocar. This project evaluates, via simulation, conventional robots with da Vinci instruments and a software-imposed (virtual) RCM.

- **What Students Will Do:** (1) Implement a virtual RCM for various robots and da Vinci instruments in the AMBF simulator, (2) evaluate performance using recorded da Vinci instrument motions.

- **Deliverables:** models and software integrated with AMBF; report evaluating performance (e.g., range of motion, singularities, collisions between arms, maximum joint velocities); max deliverable could include real robot.

- **Size group:** 1-2 students

- **Skills:** Dynamic simulation, C++ or Python programming, ROS/Linux familiarity

- **Mentors:** Peter Kazanzides (pkaz@jhu.edu), Adnan Munawar (amunawar@jhu.edu)
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Asynchronous Multi-Body Framework (AMBF)

https://github.com/WPI-AIM/ambf