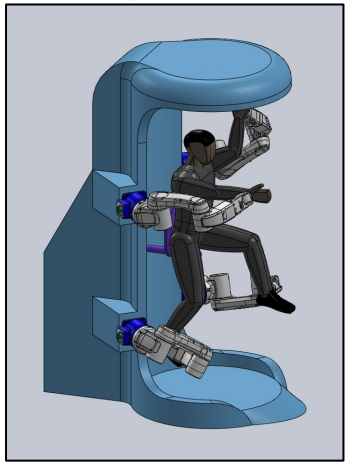
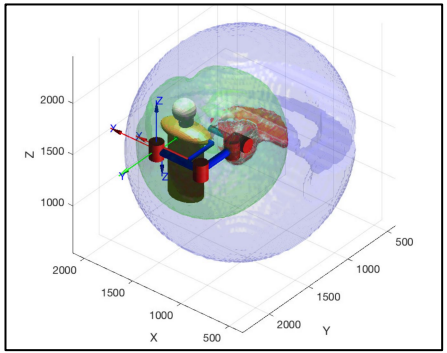
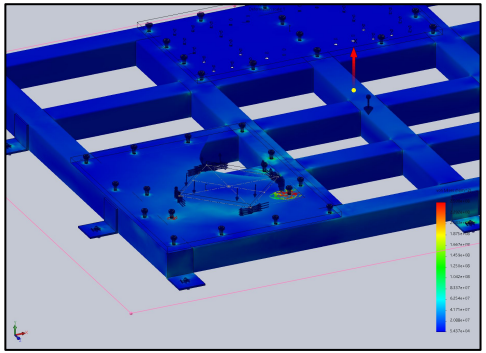
Erik Kramer | Virtual Reality Exoskeleton (V-Rex)

Project → A five robotic arm system that emulates virtual reality environments to a user through haptic feedback
Tasks → Ownership of the end-to-end development for the entire hardware system and software controller

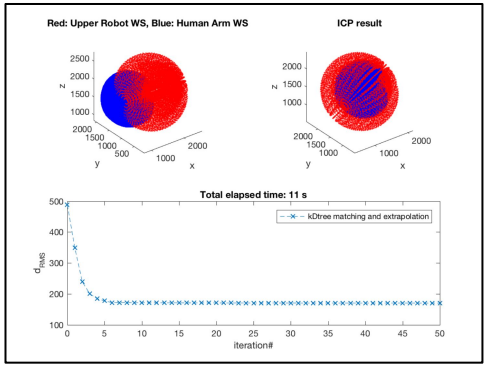
Conceptualization

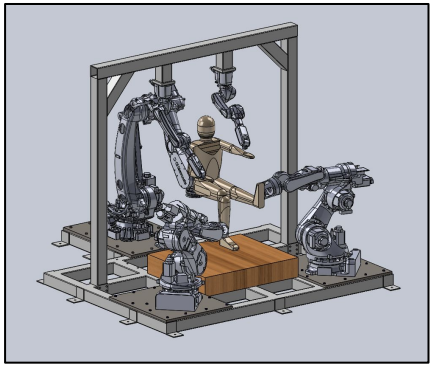




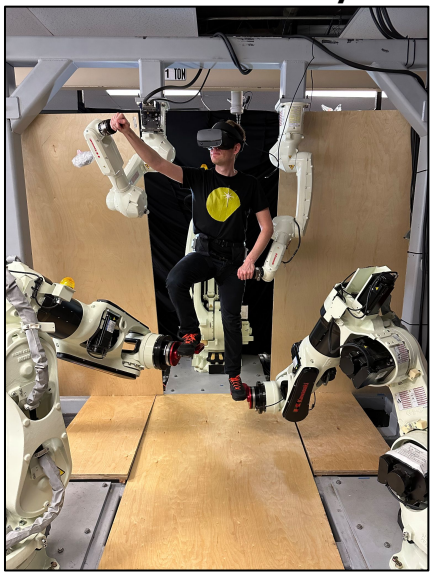


Analysis Driven Iterative Design





Product Delivery



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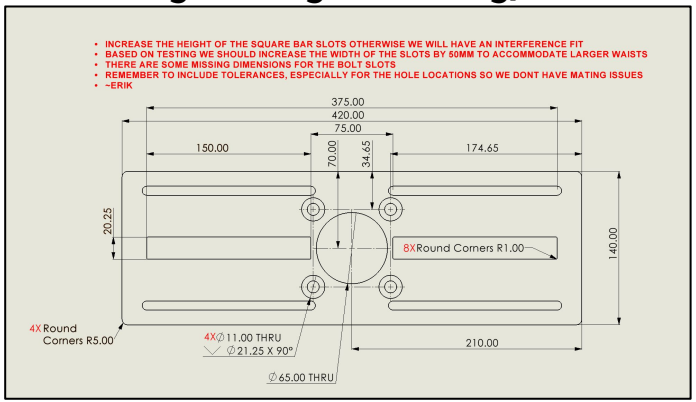
Erik Kramer | Virtual Reality Exoskeleton (V-Rex)

Objectives
- ➔ Design and fabricate a novel full body haptic device integrating industrial robots and custom parts
- ➔ Develop a safety-conscious controller to allow for human-robot interaction through force feedback

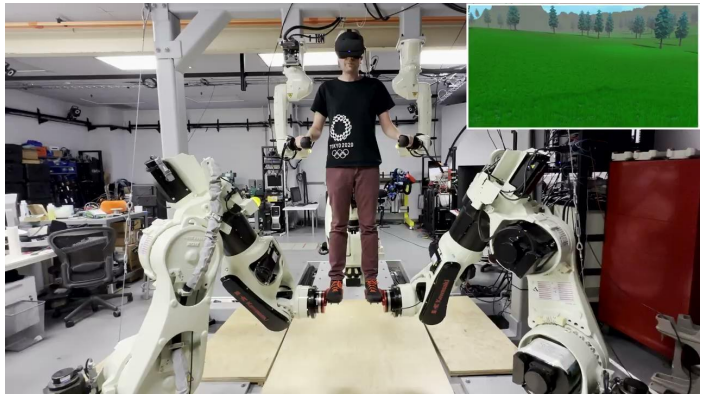
Process
- ➔ Cognizant management of all aspects of development, fabrication, assembly, and integration
- ➔ Led support engineers and reviewed their work and drawings
- ➔ Created hardware designs, configurations, and drawings
- ➔ Developed controller architecture

Results
- ➔ Demonstrated design and functionality of real time safety features through experimental data
- ➔ Submitted methods and design for peer reviewed journal publication

Drawing & Design Redlining/Review



Click for Virtual Reality Demo



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Click for Safety Control Feature Video Demo

Safety-Focused Admittance Control for Physical Human-Robot Interaction with Rigid Multi-Arm Serial Link Exoskeletons

Bionics Lab
University of California, Los Angeles (UCLA)

Click for Full-Body Video Demo

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