MECHANICAL DESIGN PORTFOLIO

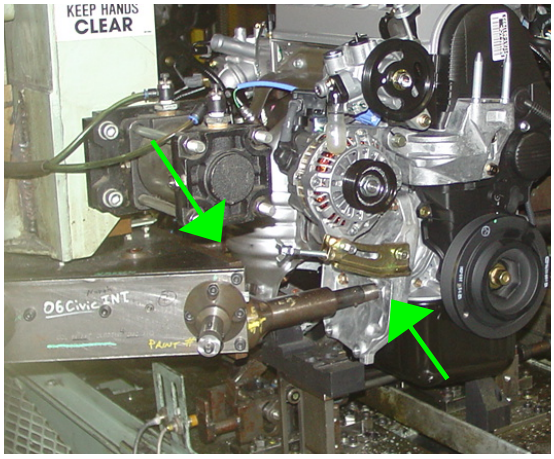
Josh Inouye

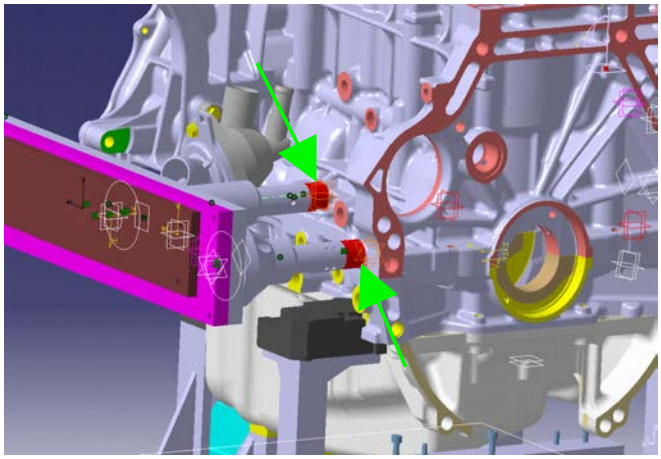
Shows a subset of mechanical design projects and experience.

Skills demonstrated:

- *3-D mechanical design (SolidWorks, CATIA, etc.)*
- *2-D mechanical design (AutoCAD)*
- *Precision machining (CNC mill, lathe, band saw, drill, cutting, tapping, etc.)*
- *Welding*
- *Experimental setup design and fabrication*
- *3-D printed part design*

3-D Model of Engine Transfer System

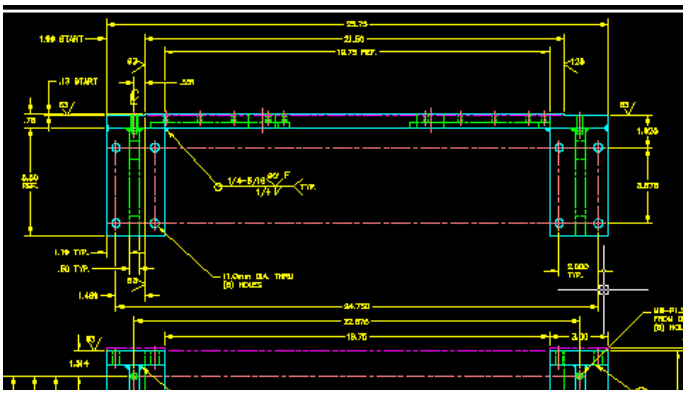




At Honda of America Manufacturing, I took measurements from the mechanical engine transfer system system and produced 3-D drawings in CATIA with the actual parts placed exactly relative to each other which allowed designing of high-precision transfer arms for new engine models. I did NOT design the engine.

Skills/Software: CATIA 3-D modeling software

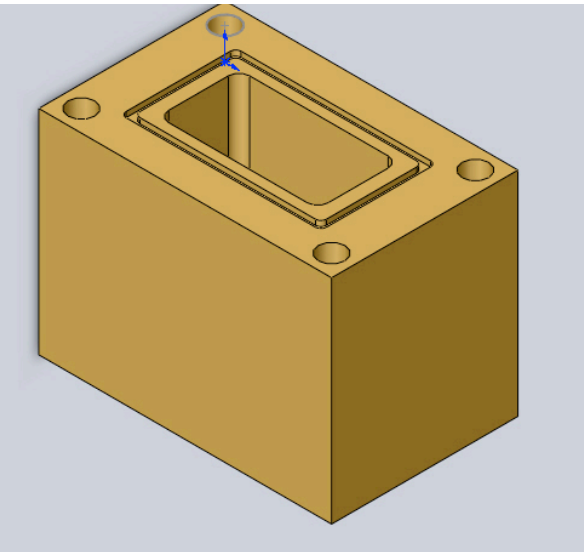
Conveyor Belt End-Stopper

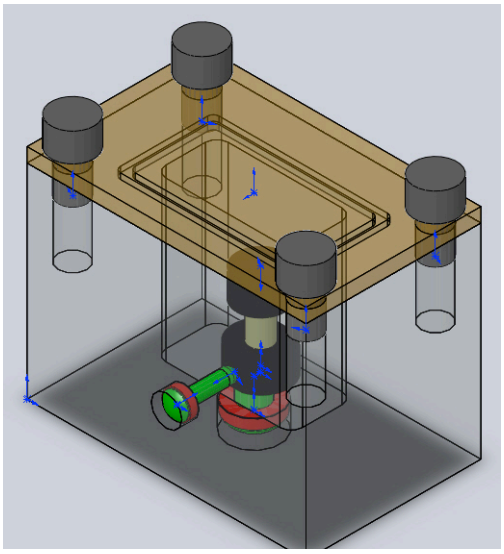


Another mechanical design project at Honda was the fabrication of a large end-stopper for a conveyor belt shown below along with the AutoCAD drawing I created. It involved lots of welding, cutting, and drilling to create this, and it ended up saving lots of space since a large former table could be removed.

Skills/Software: AutoCAD software, welding, plasma cutting, drilling, tapping, etc.

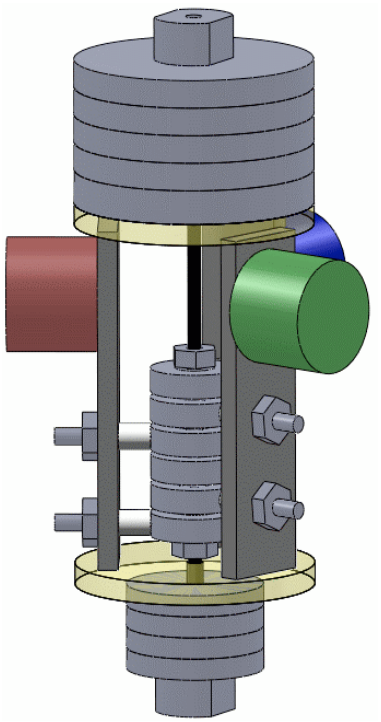
Device for Mechanical Testing of Bone Samples





I designed the above device for mechanical testing of bone samples in a research laboratory. I created drawings for the machine shop to fabricate them.
Skills/Software: SolidWorks 3-D modeling software

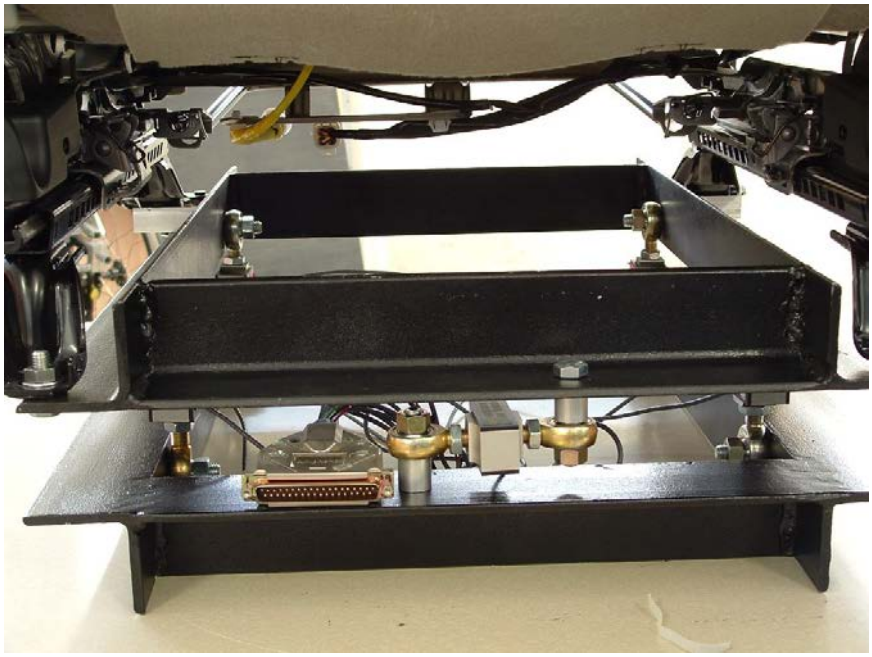
Design and Fabrication of a Precision Device for Studying Unstable Grasp Mechanics



I designed this device in SolidWorks and then used a CNC mill and lathe for fabrication of all of the precision parts.

Skills/Software: SolidWorks 3-D modeling software, CNC mill, lathe, tapping, cutting, drilling

Car Seat Load Cell Array Platform

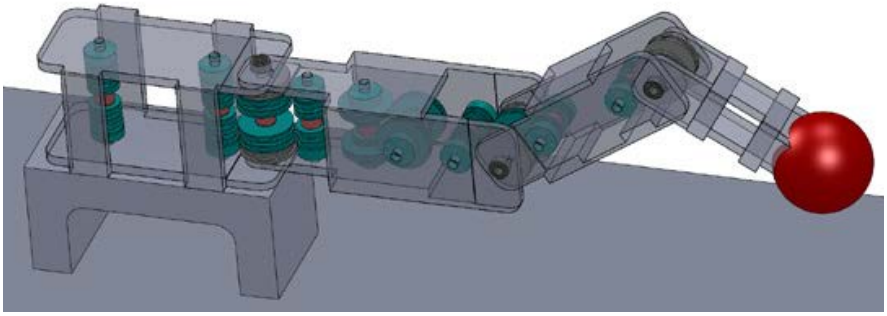


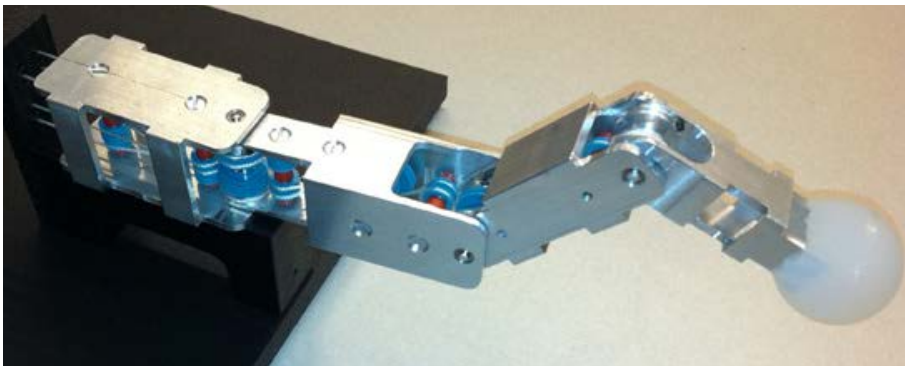
Car seat installed in car for test-

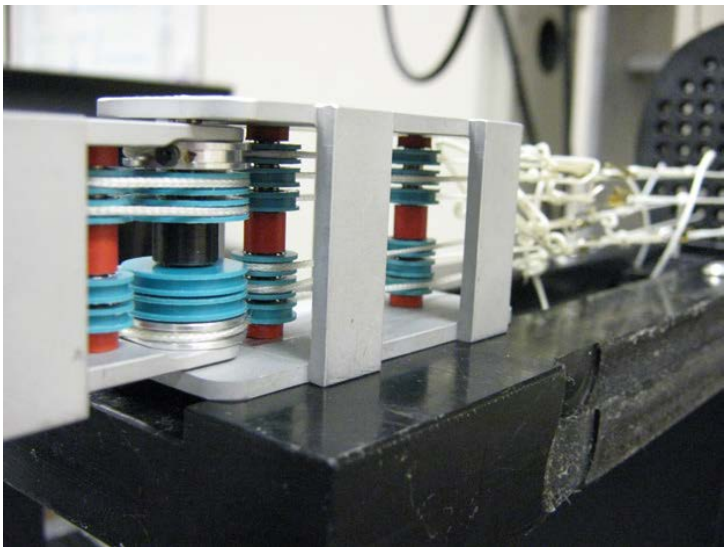
I designed and fabricated the above seat platform while working in a rehabilitation research lab to allow for experimental testing of wheelchair users' seating patterns. I designed the platform in SolidWorks to both be able to sense loads in 6 degrees of freedom as well as fit on the seat and in the car.

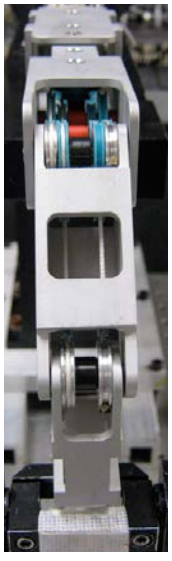
Skills/Software: SolidWorks 3-D modeling software, welding, drilling, tapping, cutting

Design and Fabrication of a Precision Robotic Finger





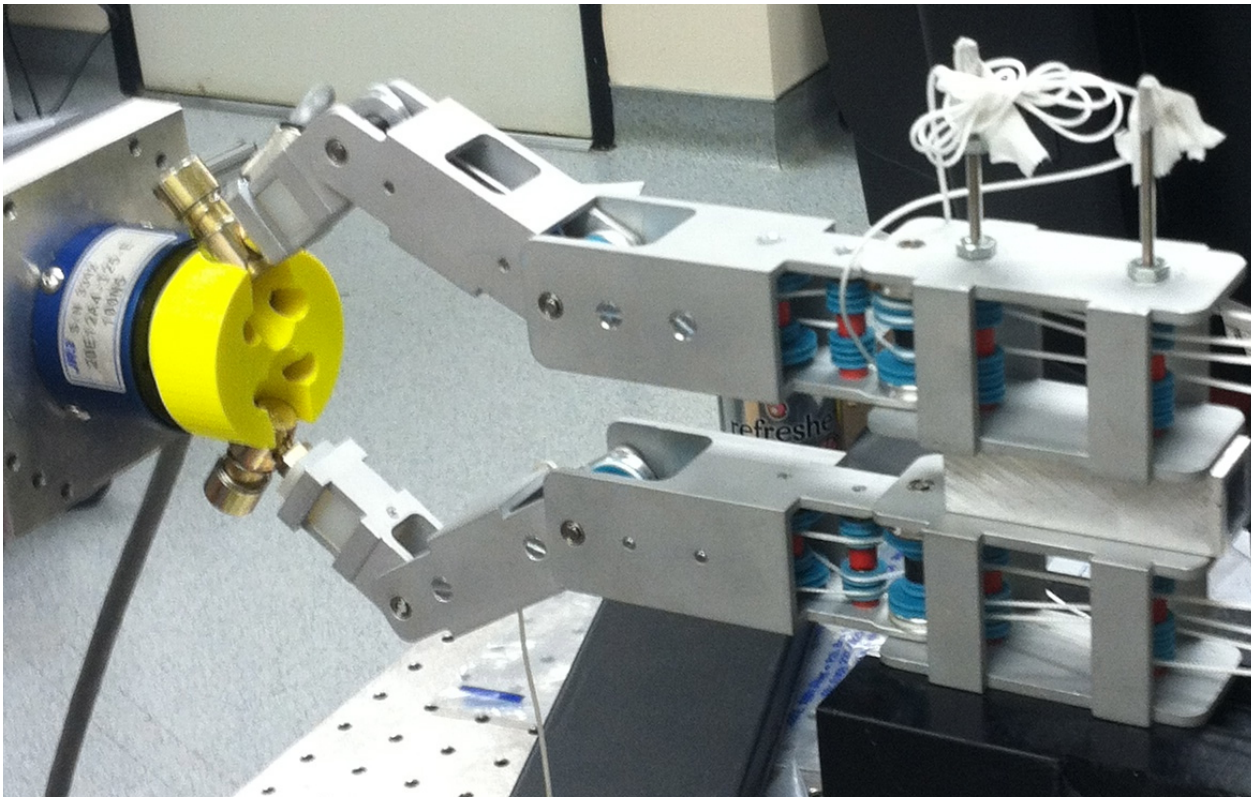




I designed the above robotic finger in SolidWorks and then used a CNC mill and lathe for fabrication of all of the precision parts.

Skills/Software: SolidWorks 3-D modeling software, CNC mill, lathe, tapping, cutting, drilling

Robotic Hand Setup and 3-D Printed Part Design



I designed the above multi-fingered robotic hand in SolidWorks and also the 3-D printed piece which is yellow for finger placement. This was for robotic hand research.

Skills/Software: SolidWorks 3-D modeling software, 3-D printed part design, fabrication of experimental setup.