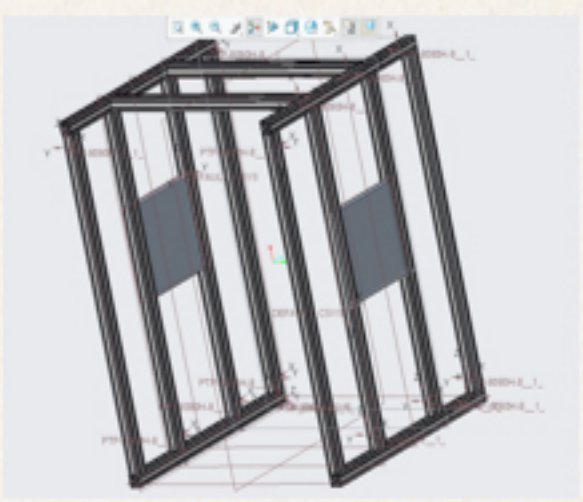
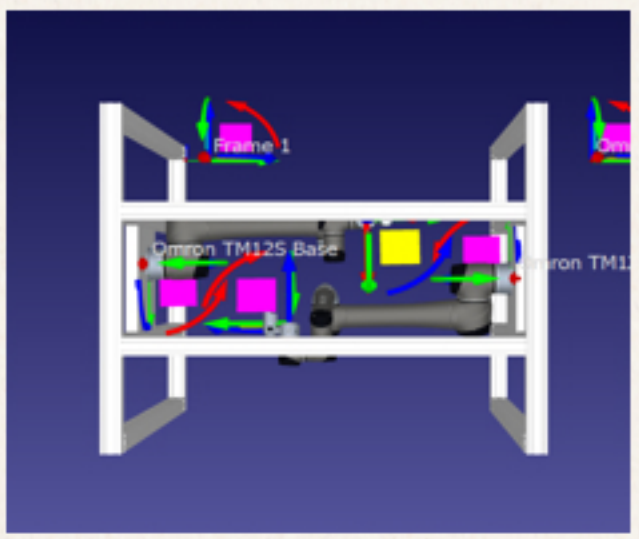
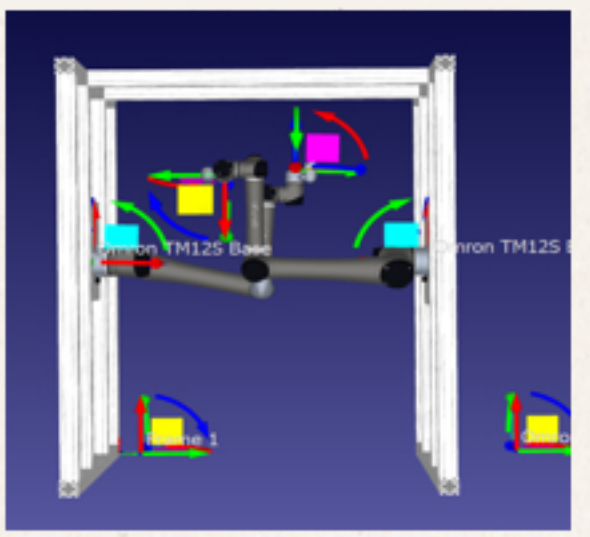
Vertical 3D Printing of Cementitious Materials with Cobots

3D cement printing is a construction method that uses automated layering to print concrete structures directly from digital designs. Construction 3D printing is commonly done using horizontal layer-by-layer extrusion, while vertical layer-by-layer extrusion is an area that has yet to be explored. This project explores dual-cobot vertical 3D printing of cementitious materials. A 3D model jig was designed and integrated with two cobots into the system using RoboDK software, which simulates cobot positioning, reachability and collision detection and coordination between the two cobots. The simulated vertical printing workflow was also simulated using the RoboDK platform.







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