

# Jordan Raymond



Jordan Raymond is a Hydrogen Systems Engineer at First Mode in Seattle, WA, USA where she is working to decarbonize heavy industry, starting with mining, by retrofitting end-of-life equipment with green energy solutions. She is a product owner for an onboard liquid hydrogen system and is responsible for both successful deployment of the system and successful interfacing with all neighboring systems. Prior to working at First Mode, Jordan gained four years of cryogenic design experience at Washington State University working in the Hydrogen Properties for Energy Research Lab with Dr. Jacob Leachman. As a graduate student earning her master's degree, Jordan helped design, build, and commission a small-scale portable hydrogen liquefier for drone refueling as part of a Department of Defense (DOD) contract. Jordan was personally responsible for guaranteeing the liquefaction of the hydrogen and the design and installation of various componentry within the liquid hydrogen system including level sensing and submersed heaters. Her thesis focused on the design of a novel heat exchanger mounted to a cryogenic refrigerator used for liquefaction within the system. The heat exchanger utilized branching and varying wall thicknesses to minimize entropy generation within the system, thereby increasing efficiency. Prior to the DOD project, Jordan headed a project investigating the feasibility of a small-scale air separation unit. The project leveraged a vortex tube with an applied magnetic field that was used to direct paramagnetic liquid oxygen and increase the oxygen concentration out of one port to more than double the original concentration. This work helped Jordan win the Donna Jung Award in 2019 and has a patent pending.

Moving forward Jordan aims to become more involved in the cryogenic industry, push for broader acceptance of hydrogen technologies, and leverage her varied experiences to enable the success of others.