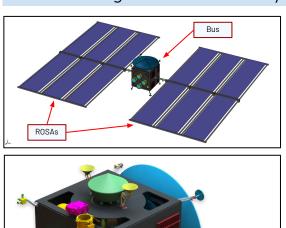
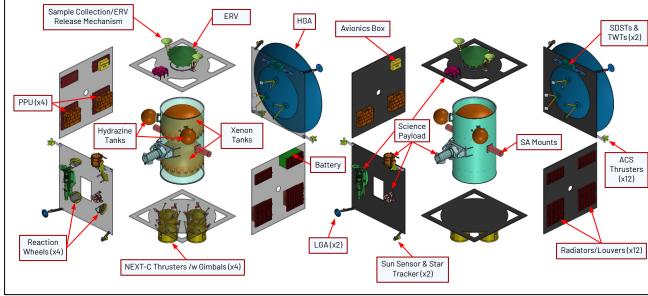
Erik Kramer | Mock Europa Sample Return Mission

Project → A pre-Phase A Europa sample return mission proposal with details for all subsystems
 Tasks → Design of structures subsystem, CAD of all spacecraft components/configurations, systems engineering work



Humans for scale



Spacecraft Design and Configuration



Erik Kramer | Mock Europa Sample Return Mission

Objectives

- → Develop a proposal, including all spacecraft subsystems, to return a water plume sample from Europa
- → Launch within 2030-2033 and have a mission duration of 10-12 years

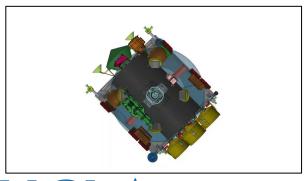
Process

- → Used SolidWorks to design and model 100+ spacecraft components
- → Tracked parts list, mass, and power through linked design spreadsheets, MEL and PEL
- → Assisted other subsystems with design iterations and trade studies

Results

- → Produced a comprehensive SEP mission concept, including spacecraft design, that satisfies all level 1 to 3 requirements and lasts 11.14 years
- → Collaborated to produce a 130 page report documenting the design and mission proposal

Click for Transparent Bus Rotation Animation



Click for Design Spreadsheet Example

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Click for Solar Array Deployment Animation

