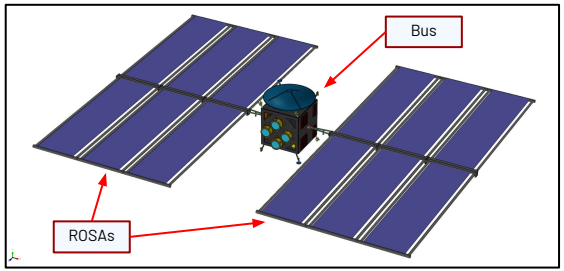
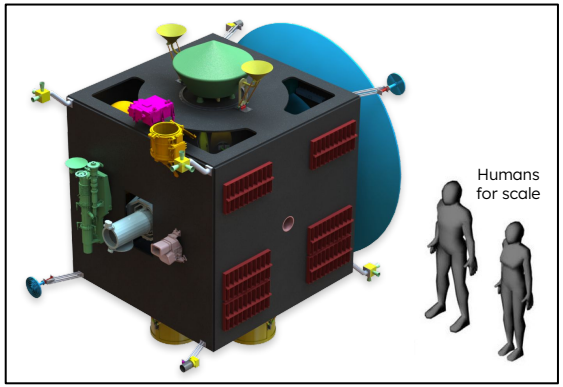
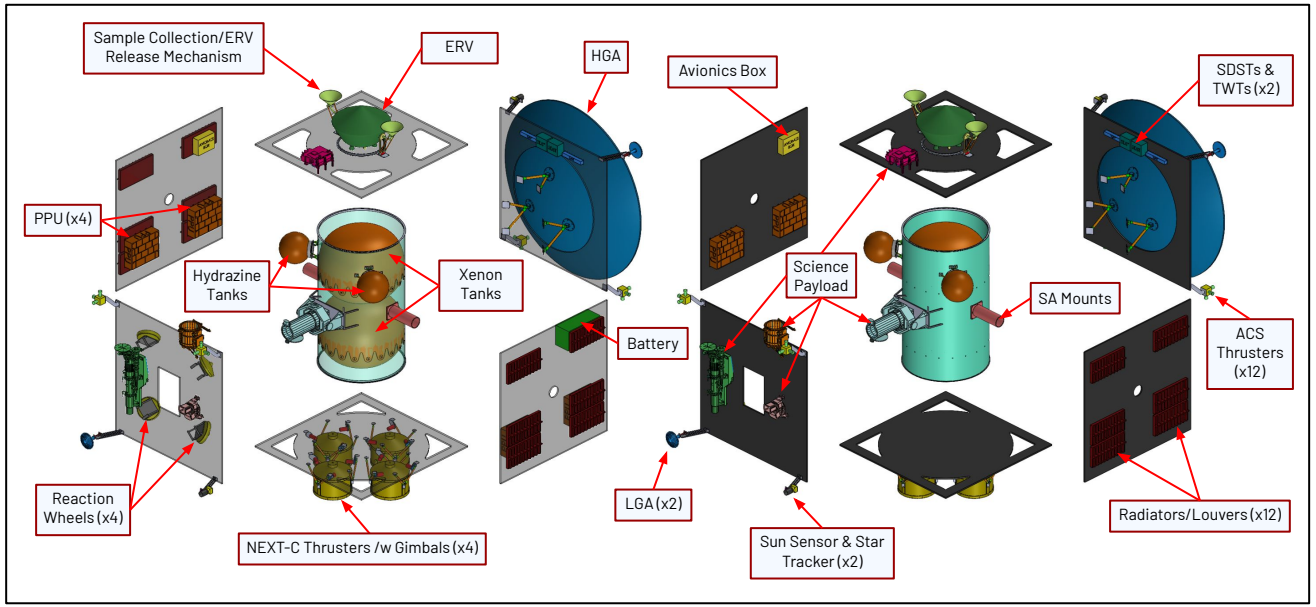
Erik Kramer | Mock Europa Sample Return Mission

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







Spacecraft Design and Configuration

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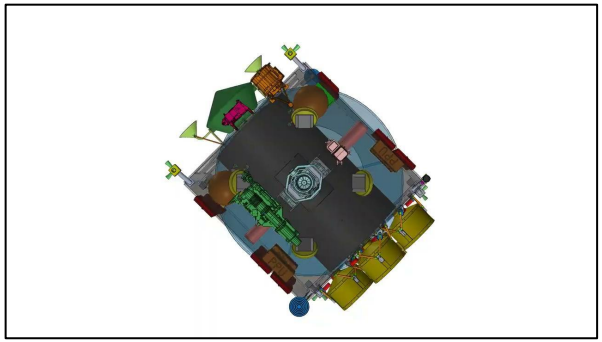
Objectives
- ➔ Develop a proposal, including all spacecraft subsystems, to return a water plume sample from Europa
- ➔ Launch within 2030-2033 and have a mission duration of 10-12 years

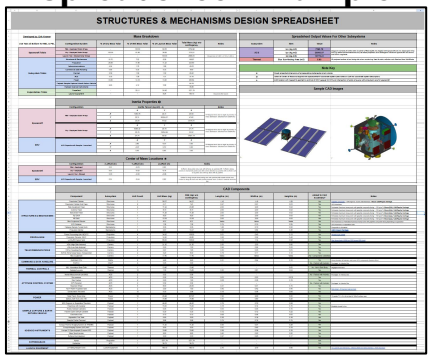
Process
- ➔ Used SolidWorks to design and model 100+ spacecraft components
- ➔ Tracked parts list, mass, and power through linked design spreadsheets, MEL and PEL
- ➔ Assisted other subsystems with design iterations and trade studies

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

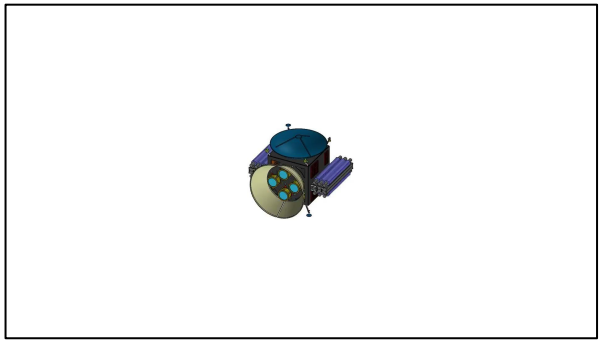
Click for Transparent Bus Rotation Animation



Click for Design Spreadsheet Example



Click for Solar Array Deployment Animation



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