

Commercial Interaction with NASA's Lunar Gateway
(STS Thesis)
Design of Amateur Radio 1U CubeSat
(Technical Paper & Prospectus)

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On my honor as a University Student, I have neither given nor received unauthorized aid on
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Socio-Technical Synthesis

The spaceflight industry is rapidly advancing in many ways; space exploration programs, rockets, human landers, space stations, and satellites are being built by both private and governmental organizations world-wide. Within my Capstone Design, we are designing a small satellite and payload to be built and launched within the next few years. This will give students hands-on experience with spaceflight, and make use of commercially available supplies.

Designing, building, and launching a student-made satellite gives hands-on experience to both future professionals and amateurs in the field. This builds a market sector within the spaceflight industry for hobbyists, students, or researchers seeking CubeSat parts and software. In turn, more products and research will be put out by the commercial spaceflight industry, encouraging progress.

To further study this market expansion, my STS thesis analyzes dynamics between private spaceflight companies and NASA, through Artemis mission contracts. This network is first compared to that of the Space Shuttle missions to determine points of weakness, and emphasize changes that have been made to improve the procurement process. Commercial spaceflight companies will have a novel new impact on the success of space explorations, and key players are highlighted. Finally, recommendations are made on how to assess these new relationships. Studying this expansion of the private spaceflight market will allow a better understanding of the new context of space exploration in a rapidly developing new network of agents.

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