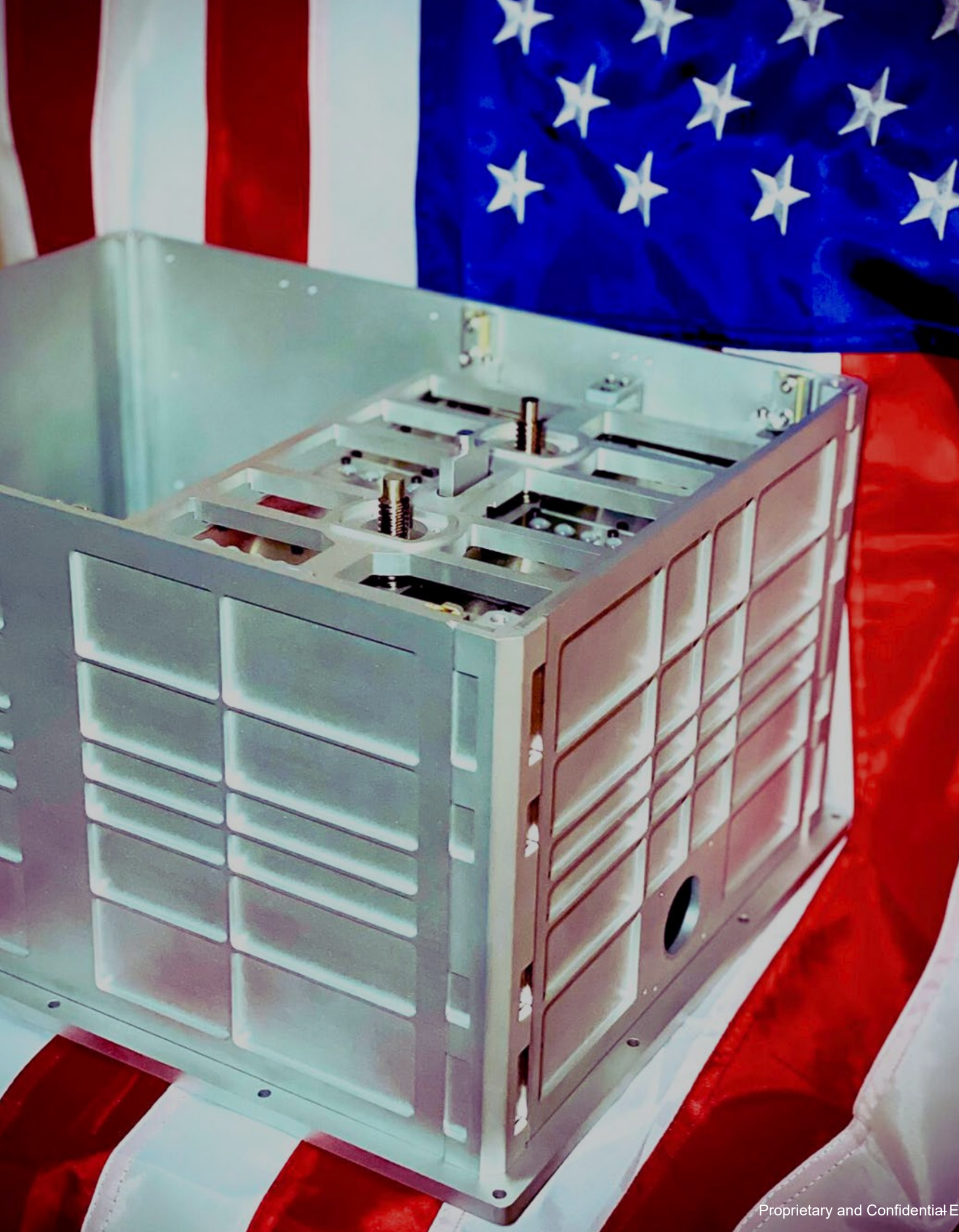




NATIONAL
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Sciences
Engineering
Medicine

CBPSS - Fall 2025 Meeting

Space R+D Manufacturing

Driving Payload Scalability and Automation in Space

Solange Massa M.D. Ph.D.

CEO- Ecoatoms



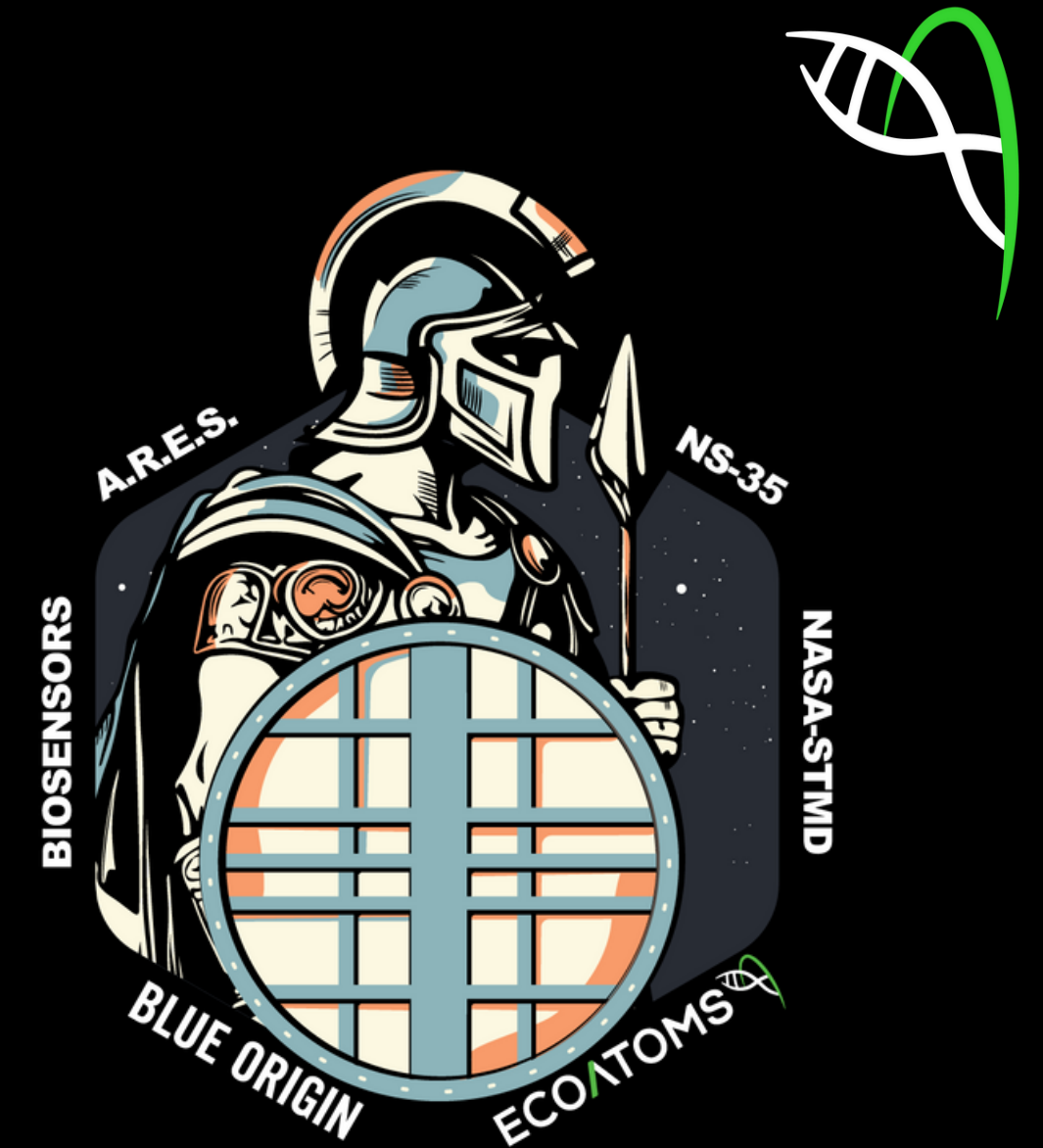
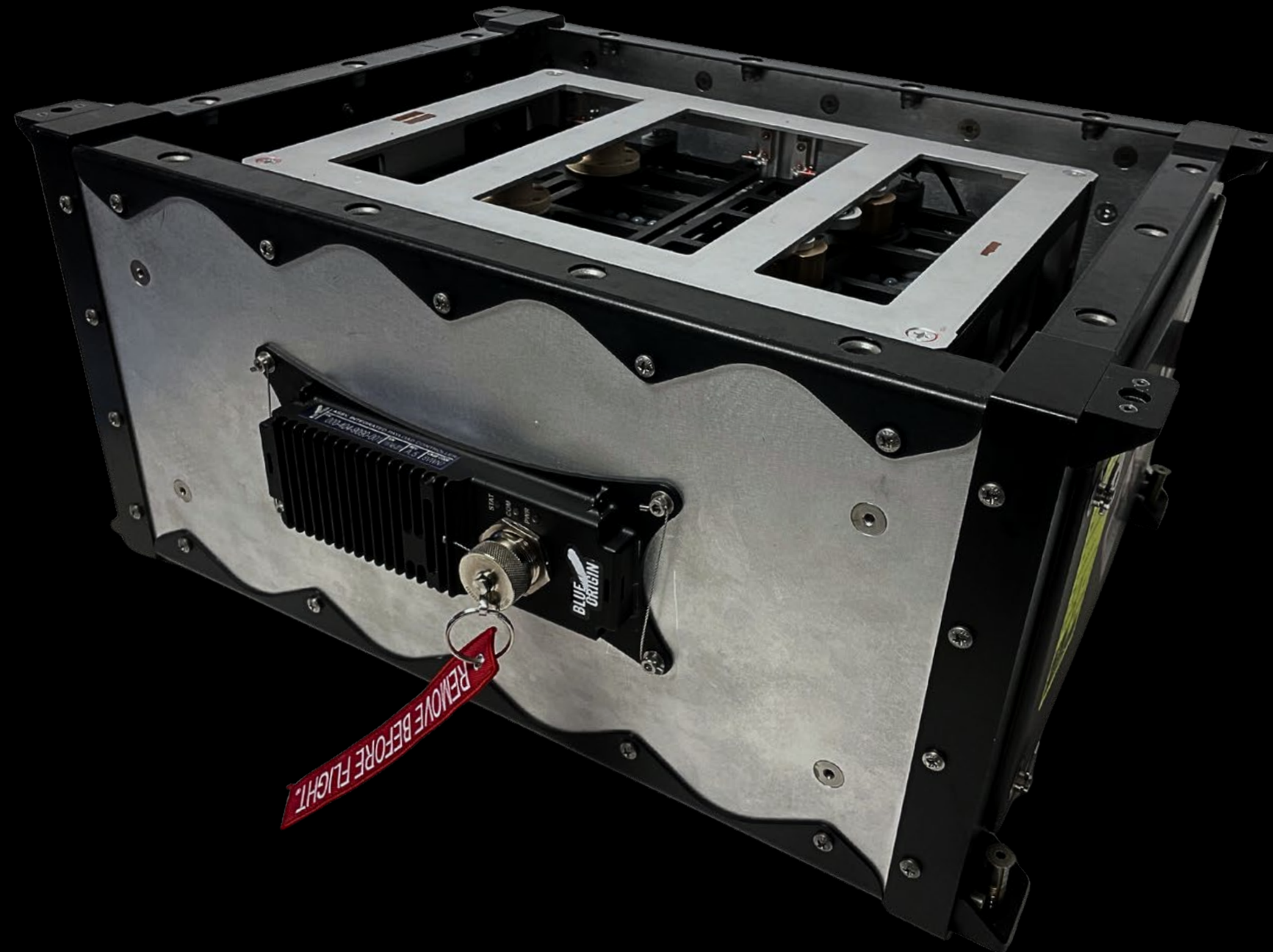
From Launch Scarcity to Launch **Abundance**

Designing for Scalable R+D Manufacturing



A.R.E.S.

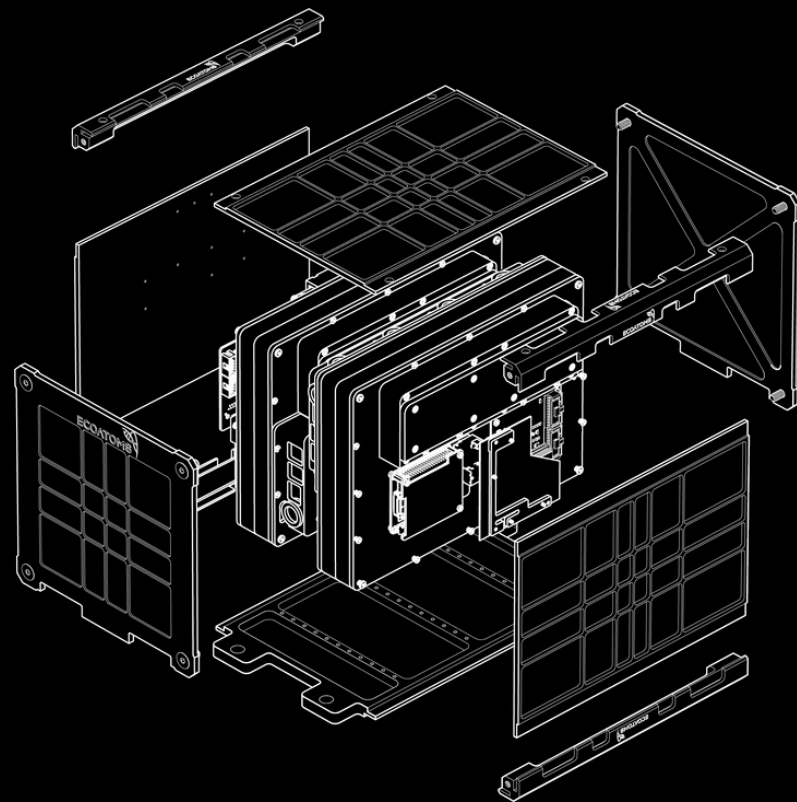
Advanced Reinforced Engineering Structure



- Coating of 432 Biosensors
- Better Self-Assembled Monolayers
- Fully Automated

L.E.T.O.

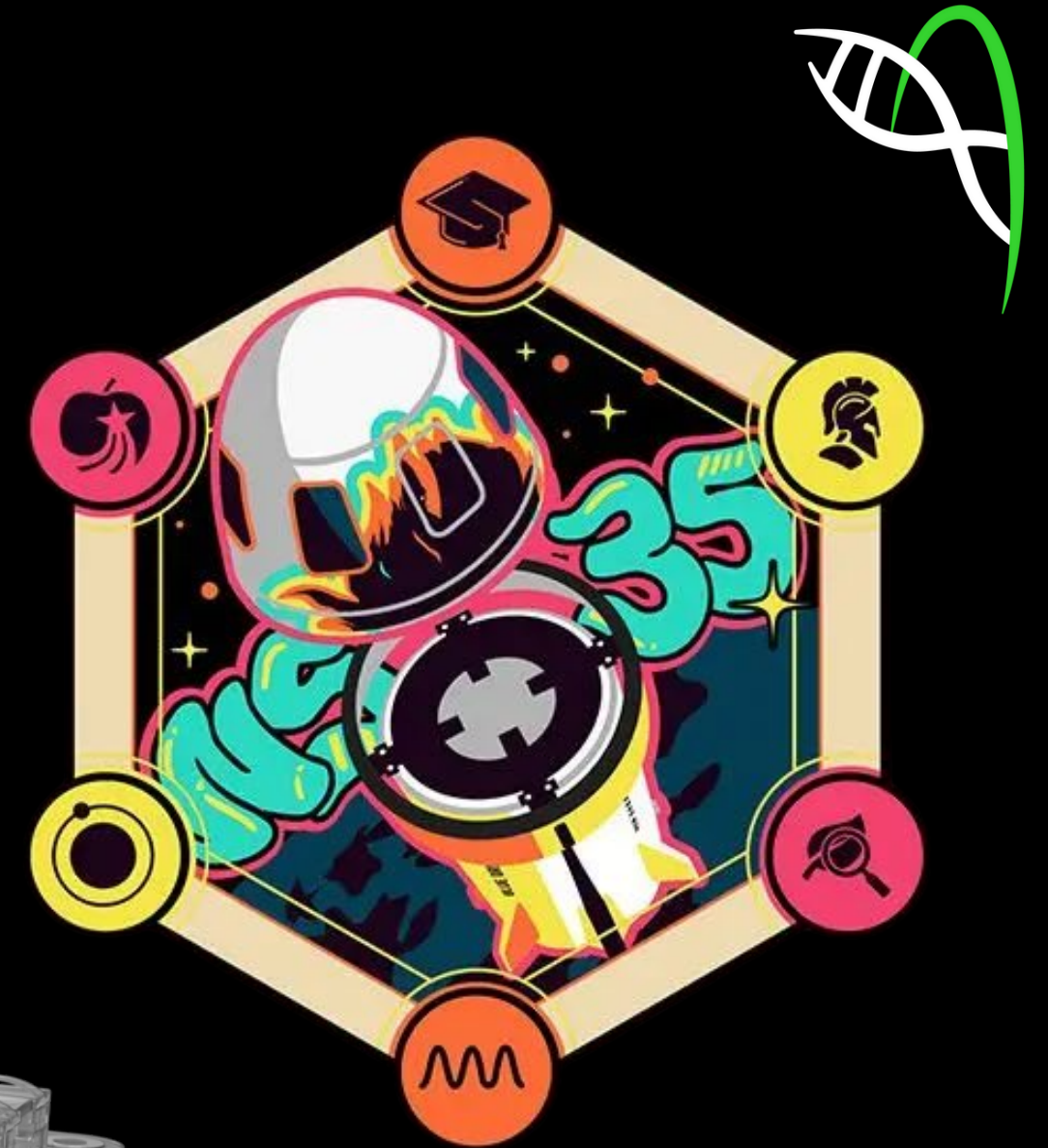
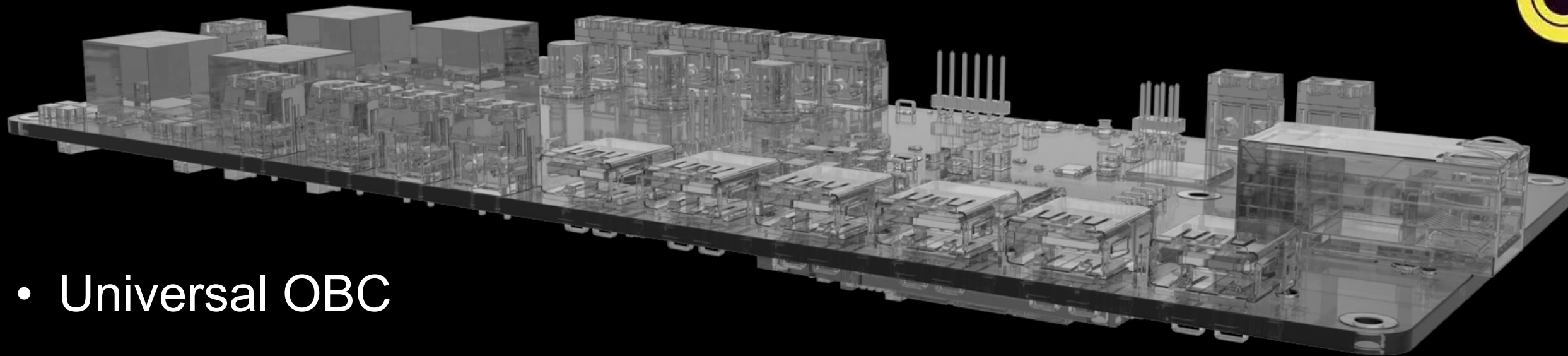
Lunar Ecosystem for Terrestrial Organisms



- Biological Experiments
- LEO to Lunar
- Multiple Organisms

A.N.I.M.A.

Apparatus for Nominal Integration with
Minimal Adaptations



- Universal OBC
- +20 Space Vehicles
- +20 Peripherals
- Pass-Through or PnP

Cost Reduction - No Engineering

H.E.R.M.E.S.



Hardware for Extraction and Reagent Mixing in Experimental Studies



- Automated DNA Extraction
- Reagent Mixing
- 2h Protocol and Astronaut time Reduced to 2 mins



Missions



Missions	Flights	Dates
L.E.T.O.	TEC/SpaceX	Q2 2025
GF500	TEC/SpaceX	Q2 2025
A.R.E.S.	NASA/Blue Origin	Q3 2025
H.E.R.M.E.S.	NASA/ZeroG	Q2 2026
A.N.I.M.A.	NASA/TBC	Q3 2026

5 Flights secured for 2026



We built this in under **2 years**

Great people



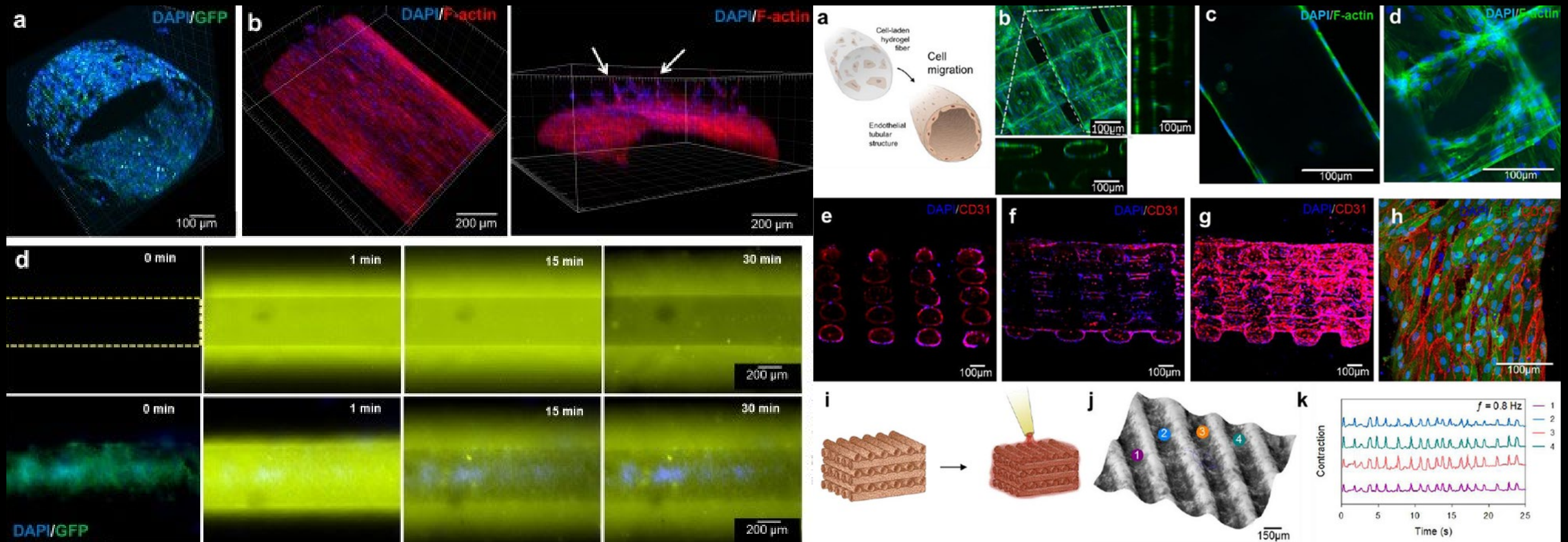
SPACEX



JPL



Great science



Massa, Solange, et al. "Bioprinted 3D Vascularized Tissue Model for Drug Toxicity Analysis." *Biomicrofluidics*, vol. 11, no. 4, 2017, 044109. <https://doi.org/10.1063/1.4994708>.

Colosi, Cristina, et al. "Microfluidic Bioprinting of Heterogeneous 3D Tissue Constructs Using Low-Viscosity Bioink." *Advanced Materials*, vol. 28, no. 4, 2016, pp. 677–684. <https://doi.org/10.1002/adma.201503310>.



Great support/partners



NASA
TechLeap
PRIZE



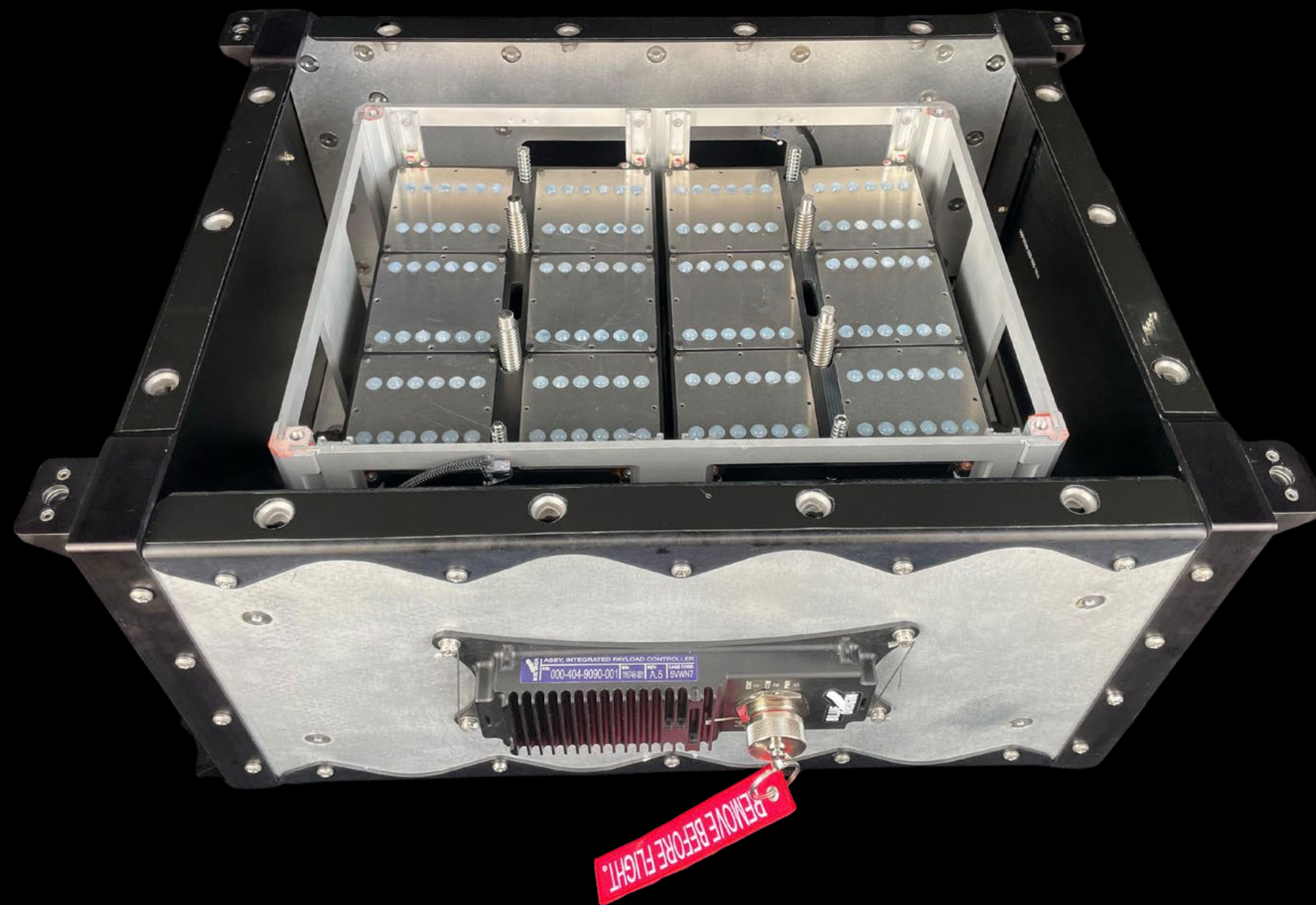
The
Exploration
Company



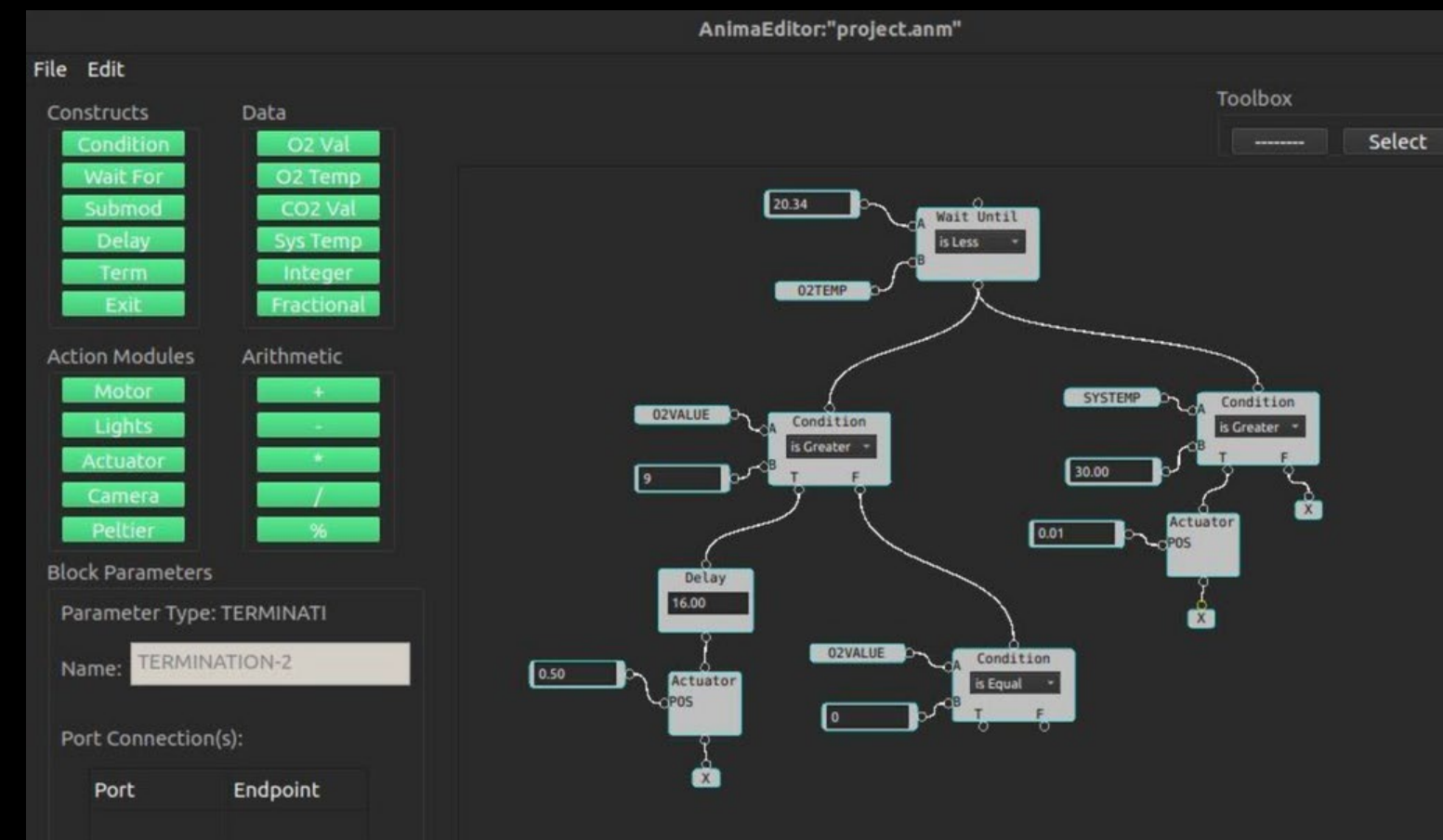
BATTLE BORN
Venture

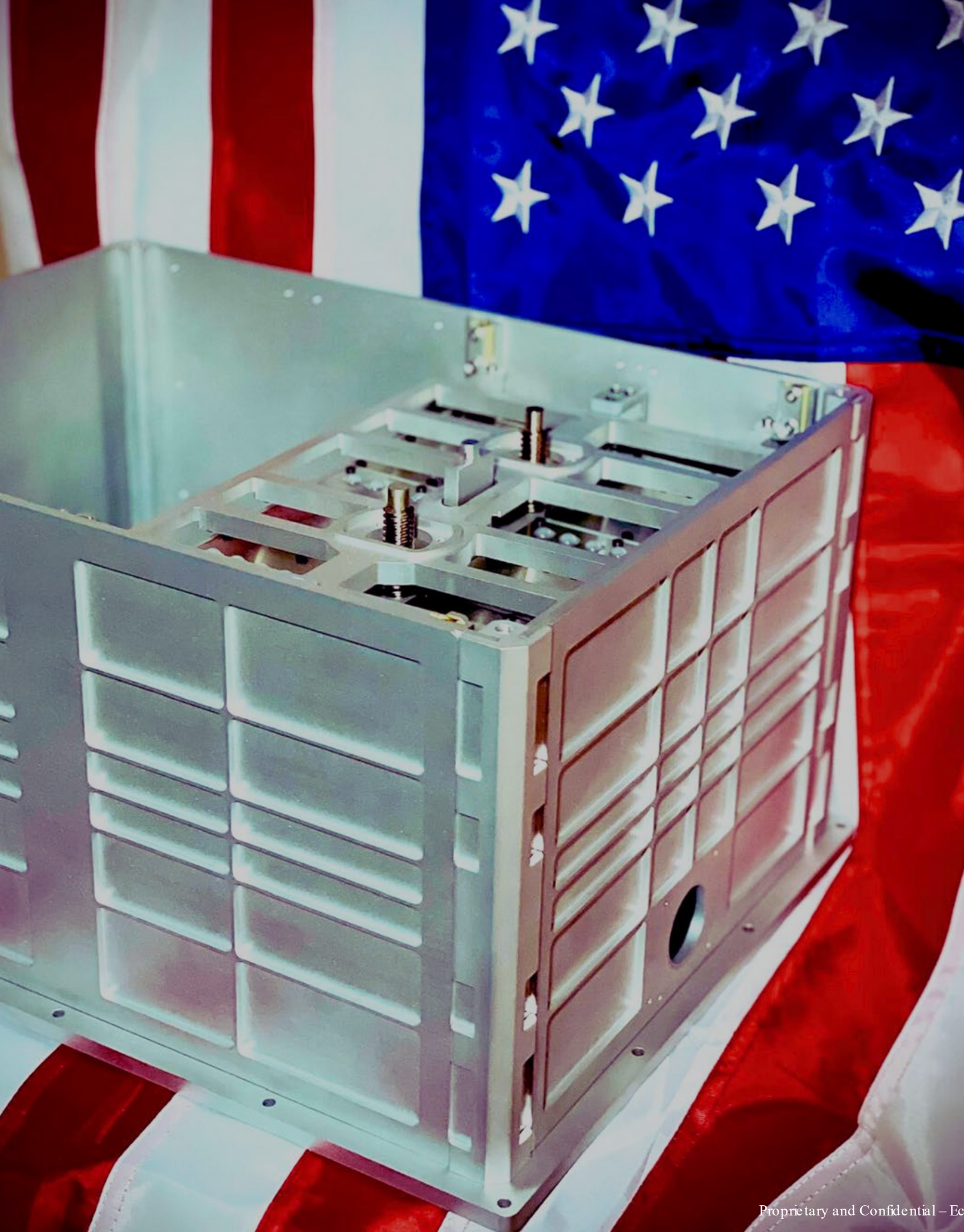
30+ institutions/companies

Need for New Hardware



And Software





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Thank You

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