Trevor Moore

(410) 991-3372 | trevor.j.moore@allanbank.com | linkedin.com/in/trevorjamesmoore |

Education

University of Maryland College Park, MD

B.S in Mechanical Engineering and Computer Science, Minor in Robotics - GPA: 3.7 *Aug. 2021 – Dec 2025*

- Engineering Coursework: Vibrations, Fluid Mechanics, Heat Transfer, Structures, Fluid Structure Interactions
- CompSci Coursework: ROS2 Fundamentals, Algorithms, Computer Vision, ML/AI, Data Science

Experience

Thermal Engineering Intern May. 2023 – Aug. 2024

Johns Hopkins University Applied Physics Laboratory: Dragonfly Program *Laurel, MD*

- Developed cryogenic thermal conductivity tests on insulation materials at -180C for material selection.
- Conducted airflow and leakage tests on a 3-ft lander cross-section to evaluate sealing feasibility and correlate leak size to airflow, informing structural sealing design.
- Developed and tested a baffle grid module to suppress chimney effect between foam and honeycomb panels; **validated findings with Thermal Desktop simulations.**
- Aided development of a Thermal Development Test Module (DTM) for airflow, sealing, and thermal balance tests.
- Designed a venturi for measuring 3–10 Pa pressure drops in the DTM cooling duct with ±0.5 Pa accuracy to aid ANSYS Fluent model correlation; wrote MATLAB script to optimize its geometry using sigmoid curves.
- Engineered a baffle grid for a 3,375 ft^3 Titan Chamber to simulate stagnant air conditions for large-scale testing.
- Built **reduced-order Thermal Desktop models** to assess insulation node density (within ±5% thermal error) and determine cooling control points to maintain battery temperatures between 0–15°C.
- Automated thermocouple data processing in MATLAB to convert raw outputs into readable formats.
- Served as **Mechanical Design Lead for an ACE Run** on asteroid deflection using ion beam propulsion

UMD Loop Sept. 2022 – May. 2025

University Rover Challenge 2025 - President & Chief Mechanical Engineer

- Directed **all technical operations** including mechanical, software, and electrical design, assembly, and testing, ensuring full system integration and performance across all subsystems.
- **Led and managed a team of 50+ students**; coordinated sponsor outreach, faculty and organizational communication, budgeting with the Aerospace Department, and internal recruiting and event planning.

University Rover Challenge 2024 - Robotic Arm Lead

- Led undergraduate team of 8 in the full design and integration of a custom 5-DOF robotic arm, including cycloidal gearbox, parallel and linear grippers, structural components, and an analog/digital control panel.
- Prototyped a 10:1 cycloidal gearbox and developed a custom rig to measure efficiency, backlash, and lifetime.
- Designed, prototyped, and tested a 100:1 stacked gearbox (two 10:1 stages) using 3D printing to identify failure modes such as pin pull-out, gear hole ovalization, lubricant leakage, and output plate separation.
- Directed trade studies and testing of parallel linkage and linear gripper end effectors; guided two team members through independent design iterations.
- Performed structural load analyses to minimize deflection and reduce weight in aluminum forearm, bicep, and actuator support plates.
- Managed task delegation, inventory, procurement, and CAD version control across the team.

Maryland Day System Demonstration 2023 - Hydraulics & Thermal Lead

- Refurbished hoses, ground station containment box, valves, quick disconnects, onboard/flow divider mounting.

Not-a-Boring Competition 2023 - Hydraulics & Thermal Member

- Determined temperature, volumetric flow, and pressure changes across motors, pumps, heat exchangers, hydraulic cylinders, and valves and documented on P&ID diagrams for Final Design Proposal.
- Designed hydraulic manifold for excavation subsystem involving 3 hydraulic motors.

Technical Skills

Modeling: Siemens NX, SolidWorks, AutoCAD, Thermal Desktop, Creo/Windchill, Fusion 360
Manufacturing: CNC, Lasercut, Lathe, SLA, 3D Printing, GD&T (ASME Y14.5)
Programming: ROS2, C++/C, Python, MATLAB, Java, OCaml, Rust