Nathan Sumaylo

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Professional Summary

Mechanical Engineer (EIT) with expertise in rotordynamics, thermal analysis, and aerospace systems design. Experienced in FEA simulation, multi-disciplinary team coordination, and technical documentation for satellite and propulsion projects. Eager to contribute engineering design and project support skills to the development of advanced scientific instrumentation.

Education

BSc, Mechanical Engineering Class of 2025
University of Alberta, Edmonton, AB

- *Northern Lights Excellence in Technical Design Award* – Top 5% of capstone class for satellite capture mechanism design in collaboration with MDA
- **Relevant Coursework:** Mechanical Vibrations, Heat Transfer & Thermal Systems, Fluid Mechanics, Thermodynamics, CFD

Technical Skills

Design & Analysis: Rotordynamics, Rotating Systems Design, Bearing Analysis, FEA, Thermal Analysis, CFD
Software: SolidWorks, CREO, AutoCAD, ANSYS, Thermal Desktop, AxSTREAM, STAR CCM+, MATLAB
Professional: Engineering Documentation, Quality Assurance, Project Management, Multi-Disciplinary Coordination, 3D Scanning/Metrology

Certifications & Training

Rotor Dynamics and Bearing Analysis – Softinway (AxSTREAM) Certificate of CompletionNovember 2025

Engineering Experience

Junior Engineer-In-Training Jun. 2025 – Present
Blackstone Technical Services, Sherwood Park, AB

- Coordinate with machine shops and manufacturers for turbomachinery component fabrication and repair, ensuring compliance with quality standards and design specifications
- Generate 70+ quality repair checksheets and 10+ Inspection Test Plans (ITPs) ensuring compliance with industry standards for rotating equipment
- Produce CAD drawings using CREO for manufacturing and re-engineering of turbomachinery components
- Utilize 3D scanning technology (Creaform VXelements/VXscan) to digitally capture rotating equipment for dimensional analysis and re-engineering
- Author technical documentation including repair disposition reports, procedural instructions, and process revision documents

Project Experience

Turbopump Bearing Development – Launch CanadaJun. 2025 – Present

- Lead rotordynamics analysis for novel bearing design in aerospace propulsion system with no existing space mission heritage
- Coordinate with design team members to ensure component designs meet project requirements and manufacturing feasibility
- Conduct simulation and modelling including bearing analysis and structural assessments using AxSTREAM rotordynamics software
- Generate technical documentation including trade studies and system definition documents for propulsion component design
- Prepare for Preliminary Design Review (PDR) scheduled December 2025

Ex-Alta 3 CubeSat Thermal Analysis – AlbertaSat (University of Alberta)2025 – Present

- Collaborate with physics researchers and multi-disciplinary engineering team (electrical, structural, thermal) on satellite mission launching June 2026
- Conduct thermal simulation and modelling using Thermal Desktop to analyze critical subcomponents and complete satellite assembly for space environment qualification

- Lead author for Thermal Vacuum (TVAC) testing documentation within 4-person thermal team
- Assist in TVAC chamber maintenance, repair, and safety compliance for flight-ready spacecraft hardware testing

Satellite Capture Mechanism Design – MDA Capstone ProjectSep. – Dec. 2024

- Served as communications lead coordinating 5-person team on systems engineering design challenge for MDA (MacDonald, Dettwiler and Associates)
- Developed conceptual satellite capture mechanism using SolidWorks; prepared engineering drawings and design documentation meeting MDA specifications
- Awarded Northern Lights Excellence in Technical Design Award (top 5% of class) for outstanding engineering design

Frisbee Aerodynamics CFD Analysis – Class ProjectMay 2024

- Conducted computational fluid dynamics simulations using ANSYS and STAR CCM+ to analyze aerodynamic performance
- Generated simulation data and technical recommendations based on lift and drag analysis across multiple geometries

Leadership & Volunteering

Area Lead, CFC-Youth Edmonton2018 – 2025

- Led team of 15 youth leaders organizing monthly events for 100+ participants; coordinated national conferences for 500+ attendees
- Managed organizational budget, scheduling, and program logistics across multiple committees

Additional Information

Travel: Available for travel to collaboration meetings, research sites (including SNOLAB), and supplier locations

Professional Membership: APEGA Engineer-In-Training (EIT)