

DOMINIC BELYAEV

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EDUCATION

Northwestern University | McCormick School of Engineering

Evanston, IL

B.S. in Mechanical Engineering - Concentration in Aerospace Engineering - GPA: 3.4

Expected 2028

Relevant Coursework: Mechanics of Materials, Thermodynamics, Stress Analysis, Fluid Mechanics, Materials Science, Electronics Design

WORK EXPERIENCE

Levanta Technologies

Diamondhead, MS

Mechanical Engineering Intern

Jun - Aug 2026

- Built a passive retractable keel fin for a USAF/Navy-backed drone, rigid at 50 knots, folding 80° to recover on ship deck
- Ran Ansys Fluent CFD to refine conservative drag estimates from 0.10 to 0.011, cutting hinge moment 9× for fin mechanism
- Sized torsion springs with Shigley's method and iterated 3 printed prototypes in Fusion to final redundant twin-fin design
- Fabricated plugs, molds, & structural parts, and helped build a full-length carbon bottom skin reducing total weight by 5%

Meemo - Wristbuddy

Evanston, Illinois

Industrial Design Intern

Jun - Jul 2025

- Designed a 3-button actuation mechanism for a parent-child locating device, matching capped plungers to tactile PCB switches
- Packaged an RGB status indicator into the housing and verified plunger travel and component clearances in SOLIDWORKS

PROJECTS

Carbon Fiber Nosecone & Telemetry Rocket Build

May - Aug 2026

- Designed & manufactured a carbon fiber nosecone: one-shot layup in a printed split female mold, 47% lighter than fiberglass
- Hand-soldered and integrated a Pico 2 flight computer (IMU + barometer) into the nose section, logging 100 Hz flight data
- Designed the avionics housing and recovery load path to a uniform SF ≈ 2 against the ~ 300 N parachute deployment spike
- Used data capture to trace root cause of initial flight's failure to parachute issues, then fixed & reflown successfully
- Directed an AI-assisted 3D reconstruction of both flights from raw IMU data, matching the barometer at apogee within 3.3 m

Northwestern University Space Technology & Rocketry Society (NUSTARS)

Jan 2026 - Present

- Designed a compact battery sled in Onshape for easy integration into ESRA IREC 25-26 competition rocket avionics bay
- Integrated sled to secure electronics against loads in $\sim 10,000$ ft apogee flight using heat-set inserts and anti-vibration fasteners

NAR Level 1 Rocket Certification

Apr - Jun 2026

- Earned NAR L1 certification, building and flying an H182-powered rocket with single-deploy parachute recovery
- Tuned ejection delay to sim's optimum by modeling the rocket in OpenRocket a 2,460 ft apogee and 1.6-cal stability margin
- Assembled a 3-inch fiberglass airframe using epoxy, jig-aligning fins, & reinforcing the roots with carbon-reinforced epoxy fillets

Bicycle Brake Caliper Design

Mar - Jun 2026

- Modeled & assembled arms in NX, validating each to a 1.2 safety factor against the 50 MPa Nylon-12 material stress limit
- Cut critical-arm peak stress by 16% and raised the deflection safety factor to 1.45 via an FEA & topology optimization redesign
- Tested brakes per ISO 4210-2, beating the 7.62 m stopping-distance spec at 5.33 m after correcting a fit failure

DC Motor Control System

Jan - Mar 2026

- Built a dual-loop PID control system (1kHz current, 200Hz position) using C on a Raspberry Pi Pico for a brushed DC motor
- Achieved <25 mA average current tracking error and <9 degree average position tracking error through iterative PID tuning
- Developed a Python serial interface with 15+ real-time commands for trajectory generation, gain tuning, and data plotting

The Tele

Sep - Dec 2024

- Designed and prototyped a one-handed diapering aid for people with hemiplegia using SOLIDWORKS and common shop tools
- Conducted user testing with hemiplegia patients, iterating from an initial mockup to the final design based on usability feedback

MagClean

Mar - Jun 2025

- Built a magnet-powered whiteboard cleaner on the manual mill, band saw, and drill press; deployed in the Ford Design Center
- Cut full-board cleaning time $\sim 50\%$ vs standard erasers, tuning cleaning pressure and reach through user testing across heights

LEADERSHIP & ACTIVITIES

Lambda Chi Alpha Fraternity, Northwestern University

Evanston, Illinois

Social Chair

Jan 2025 - Present

- Managed a \$30K annual chapter social budget, securing 3 corporate sponsorships to offset event costs and member dues
- Planned ~ 100 events with 5,000+ total attendance, from recruitment programming to chapter-wide formals

Northwestern University Men's Rugby Club

Sep 2024 - Present

SKILLS

Software: SOLIDWORKS, NX, Onshape, Fusion, Ansys Mechanical, Ansys Fluent, Python, C/C++, MATLAB, Microsoft 365 Suite

Design & Analysis: FEA/CFD, GD&T, Topology Optimization, Stress Analysis, Rapid Prototyping, Structures/Electronics Design

Instrumentation & Test: Sensor Integration, Calibration, Data Acquisition, Flight and Load Testing, Root Cause Analysis

Fabrication: 3D Printing, Composites Manufacturing, Lathe, Mill, Laser Cutter, Sheet Metal Tools, Bandsaws, Soldering