

JOHN RICHARD SCHLICHTING

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EDUCATION

University of Colorado Boulder

May 2026

B.S. Integrated Design Engineering — Concentration: Aerospace Engineering | Emphasis: Engineering Management
Minor: Business Administration

TECHNICAL SKILLS

Aerodynamics & Design: MATLAB, OpenVSP, XFLR5, static stability analysis, wing and tail sizing, airfoil selection

CAD & Manufacturing: Onshape, 3D printing (TPU/PLA/ASA), foam fabrication, carbon fiber structures

Professional: Technical writing, data analysis, market analysis, project management, public speaking

ENGINEERING PROJECTS

Buffalo Advanced Air Transport — Morphing Trailing Edge Demonstrator

2025 – 2026

Prototype Team | Smead Aerospace Senior Design | University of Colorado Boulder

- Contributed to the Prototype Team designing and building a sub scale flight demonstrator to validate Morphing Trailing Edge (MTE) technology, a key efficiency enabler in the team's clean sheet transonic transport concept targeting 50% NMpg improvement over the Boeing 737 Max 8.
- Independently designed the full tail assembly: sized horizontal ($VH = 0.685$) and vertical ($VV = 0.0403$) stabilizers using volume coefficient methods, aiming toward a stable configuration to maximize pilot recoverability. Selected NACA 0012 airfoil for both tail surfaces based on low Reynolds number performance characteristics and symmetrical camber.
- Validated demonstrator static margin using MATLAB stability model targeting ~15%; fabricated the entire tail assembly including stabilizers, control surfaces, and carbon fiber structural elements.
- Team wind wall testing demonstrated a statistically significant increase in CL across all MTE deflection angles; prototype completed 3 flights achieving stable flight, in flight 20° MTE deflection, and positive static/dynamic stability.

Step2It Cane — Smart Walking Cane for Active Aging

Spring 2025

Invention and Innovation | University of Colorado Boulder

- Conducted user research through in person interviews with physical therapists and healthcare professionals to identify a critical pain point: 68% of cane users are active fewer than 2 days per week, directly linking inactivity to increased mortality risk in the aging population.
- Designed and fabricated a multi material smart cane: aluminum shaft, wood crafted handle, TPU base, and ASA printed electronics housing with Arduino controlled step counting and LCD display, translating our user research findings directly into hardware design requirements.
- Developed a full business plan including TAM/SAM/SOM market analysis, competitive and patent research across 10+ products, financial projections, and a break-even analysis.

Cord Keeper Pro — NICU Sensor Cord Management System

Fall 2024

Product Design | University of Colorado Boulder

- Conducted user interviews with labor and delivery staff to identify a high stakes pain point: four critical NICU sensors were routinely lost during deliveries due to an unreliable bag system, diverting nursing time away from patients at the moment of highest need.
- Engineered a ratchet plunger retraction mechanism using elastic cord energy storage enabling automatic retrieval with zero learning curve; delivered a fully functional prototype at a minimal total material cost, validated through structural analysis, magnet strength testing, and no-instruction user trials.

Aerospace Vehicle Design Lab — Fixed Wing Glider

Summer 2024

Aerodynamics Lab | University of Colorado Boulder

- Designed, fabricated, and hand launched a fixed wing glider. Aircraft demonstrated stable, predictable flight validating aerodynamic design choices.
- Developed MATLAB models for drag polar, maximum range, and endurance; validated against wind tunnel and wiffle tree load tests to determine optimal design.

Panic at the Pinball — Self-Powered Pinball Machine

Fall 2023

Embedded Systems and Sustainable Design | University of Colorado Boulder

- Engineered a pinball machine powered entirely by a player driven inertial flywheel connected to a motor/generator, converting rotational kinetic energy into electrical power for all Arduino controlled IR scoring logic and LED lighting, built from recycled hardwood

RELEVANT COURSEWORK

Aerodynamics | Thermodynamics and Heat Transfer | Systems Engineering | Engineering Management | Business Operations