DANIEL BILOUS

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EDUCATION

Rice University – Houston, Texas **GPA: 3.63**
Degree: Bachelor of Science in Mechanical Engineering | QuestBridge Scholar **May 2028**
- Minors: Business; Computational and Applied Mathematics

EXPERIENCE

Rice Eclipse – Houston, Texas **August 2025 - Current**
Rocket Recovery Engineer
- Optimize rocket designs using OpenRocket simulations to increase average projected apogee by ~125% compared to previous iterations.
- Design structural bulkheads and interstage connections in SolidWorks under safety, reliability, and performance constraints.
- Calculate precise explosive charge amounts using MATLAB to ensure safe stage separation and reliable parachute deployment.
- Constructed an L1-Class rocket airframe and recovery system utilizing quantitative research and small-scale manufacturing processes.
- Achieved a projected apogee of 2,960 feet by leveraging SolidWorks modeling and flight simulation software for trajectory analysis.

Kits Auto – Crystal Lake, Illinois **May 2024 – August 2025**
Automotive Repair & Operations Assistant
- Assess collision damage and structural deformation to develop and address repair plans for vehicles with compromised frames.
- Execute frame repairs using hydraulic pulls, welding, and component replacement to restore alignment and structural integrity.
- Perform precision metal shaping and panel fitment to achieve proper door closure, body alignment, and consistent panel gaps.
- Diagnose engine and electrical issues by applying prioritized troubleshooting workflows to isolate likely failure points.
- Identify and address root causes of non-start and performance issues through systematic inspection and testing.

Rice Racing Formula SAE – Houston, Texas **December 2025 – Current**
Research & Development Engineer | Chassis Subteam
- Design steel spaceframe chassis for Formula SAE vehicle using SolidWorks CAD modeling and Ansys FEA structural analysis.
- Achieved target torsional stiffness of 3,200 Nm/deg while maintaining chassis weight below 35kg through optimized tube placement.
- Conduct stress distribution analysis under suspension loading to ensure FSAE safety compliance and identify critical load paths.
- Research monocoque composite architectures for future iterations, establishing multi-year chassis development roadmap.

Rice University Weiss School of Natural Sciences | Dept. of Physics – Houston, Texas **December 2025 – Current**
Undergraduate Researcher | MagLev MCS Lab
- Engineer Magnetically Levitated Centrifugal Blood Pump using Finite Element Analysis to optimize electromagnetic force distributions.
- Achieved 25% increase in magnetic torque while maintaining stable spin-stabilized levitation within 0.3mm positional tolerance.
- Conduct Computational Fluid Dynamics simulations to minimize blood damage through iterative impeller geometry optimization.
- Design and manufacture prototype components using 3D printing to validate theoretical models and projected $2,800 cost savings per unit.

180 Degrees Consulting – Houston, Texas **January 2026 – Current**
Nonprofit Consultant | Houston Land Bank Engagement
- Lead institutional research mapping Houston Land Bank's 25-year network across 40+ board members and key affiliates.
- Support fundraising for organization with $76 million in community revitalization impact through data-driven prospect identification.
- Develop tiered sponsorship matrix spanning five levels from $2,500 to $50,000 with program one-pagers and presentation decks.
- Create prospect framework targeting 75+ potential sponsors across real estate and civic sectors with outreach templates.

Future Forward Foundation (F3 Global) – Houston, Texas **October 2025 – February 2026**
Nonprofit Consultant Analyst
- Conduct extensive market research to aid small global businesses receiving microloans with data-driven consulting strategies.
- Perform equity research on global microloan institutions across peer-to-peer, institutional, and fintech models, analyzing market landscapes across APAC, Latin America, and MEA regions to identify strategic expansion opportunities and inform foundation decisions.
- Leverage Excel and PowerPoint to synthesize financial data and deliver actionable conclusions to implement microloan models.

Glenbrook North High School – Northbrook, Illinois **January 2024 - May 2025**
VEX Robotics Captain
- Pioneered the school's first competitive robotics program, building a 10+ person team from the ground up and establishing all operations.
- Established operational processes for the club including budget management, material sourcing, and comprehensive CAD training protocols.
- Coordinated cross-functional workflows between four design/fabrication sub-teams under a tight schedule to ensure project completion.
- Achieved a 40% improvement in performance by creating a platform to validate work and boost teamwork through competition.

ADDITIONAL

- **Technical Skills**: AutoCAD, SolidWorks, Revit, Engineering Drawings, Structural Analysis (FEA), Mechanical Systems Design, Manufacturing Processes, Lab Testing, MATLAB, Python, Excel, Quantitative and Statistical Analysis, Data Analysis, Data Visualization, Technical Documentation, Welding, Prototyping, Small-Scale Manufacturing
- **Interests**: Cooking, Football, Golf, Pickleball, Philosophy, Poker, Weightlifting, Woodworking