

Ashton Gomes

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Education

Stony Brook University – MS in Mechanical Engineering	Expected May 2027
Stony Brook University – BE in Mechanical Engineering GPA: 3.51/4.0	Expected May 2026

Experience

Vehicle Dynamics Lead , Stony Brook Motorsports – Stony Brook, NY	Aug 2023 – Present
<ul style="list-style-type: none">Directed a 12-member sub-team through the end-to-end design and fabrication of steering, suspension, and braking systems, utilizing Gantt charts to track critical path milestones and ensure 100% on-time delivery of all vehicle dynamics components.Modeled load transfer via MATLAB to quantify cornering forces, optimizing spring rates for maximum traction.Eliminated critical maneuverability limitations by personally re-engineering the steering and suspension geometry, achieving a 33% reduction in turning radius and a 10° increase in steering angle to maximize vehicle agility on dirt.Increased suspension component strength by 286% as validated through SolidWorks FEA and physical load testing, by optimizing control arm geometry and refining manufacturing workflows to eliminate previous failure points.	
Fellow - AI Trainer and Reviewer , Handshake AI – Remote	Oct 2025 – Present
<ul style="list-style-type: none">Fine-tuned 100+ high-complexity generative AI outputs with 100% accuracy for a top AI company, performing deep parameter analysis to mitigate model hallucinations and maximize visual fidelity.	
Project Management Intern , Dormitory Authority of the State of New York – New York, NY	May 2025 – Aug 2025
<ul style="list-style-type: none">Oversaw daily on-site operations for a \$4.4M renovation, coordinating with multi-disciplinary contractors to ensure strict adherence to project drawings, technical specifications, and milestones.Conducted comprehensive audits of MEP systems, ensuring full regulatory compliance with NY State building codes and mitigating safety risks through proactive site inspections.	
Budget Coordinator , Essential Elegance Inc – New York, NY	May 2023 – May 2024
<ul style="list-style-type: none">Managed pricing and technical documentation for 5+ interior design projects, ensuring zero schedule delays.Built advanced Excel tracking systems for procurement and project planning, reducing administrative processing time by 30%.Sourced and analyzed competitive quotes from 20+ vendors, strategically negotiating terms to reduce material costs by 15%.	

Projects

Senior Design - Shock Dynamometer	Aug 2025 – Present
<ul style="list-style-type: none">Developed a custom Scotch Yoke shock dynamometer to provide objective suspension analysis, engineering the system for 30 in/s peak velocity over a 3-inch stroke for precise damping characterization.Engineered the power transmission and control system utilizing an AC motor, VFD, and load cell DAQ, enabling adjustable velocity profiles to generate force-velocity curves for suspension tuning.	
7 DOF Manipulator Analyzer	Nov 2025 - Dec 2025
<ul style="list-style-type: none">Engineered a Python-based kinematic suite to solve for screw axes and numerical Inverse Kinematics (IK) using the Newton-Raphson method and Body Jacobians. Mapped the reachable workspace and identified singular configurations through Jacobian rank and condition number analysis.Programmed complex motion trajectories using 3rd/5th-order polynomials and cubic splines to navigate end-effector via points in Cartesian space. Validated all motion profiles through simulation to ensure compliance with all joint limits.	
PID Turntable Controller	Oct 2025 - Dec 2025
<ul style="list-style-type: none">Engineered a digital PID turntable speed control system using LabVIEW and NI-DAQ, optimizing gains to achieve a 0.043s rise time and zero overshoot while validating experimental performance against MATLAB simulations.	
Samsung Galaxy Phone Case Prototyping	Apr 2025 - May 2025
<ul style="list-style-type: none">Developed an optimized TPU smartphone case by iteratively refining fin geometry via SolidWorks Flow Simulation (CFD), achieving a 46.4% increase in cooling efficiency over benchmark designs as validated through physical prototyping and testing.	

Skills

Software: SolidWorks, Fusion360, Python, MATLAB, Microsoft Office, Google Workspace
Relevant Coursework: Control Systems, Robotics, Machine Design, Numerical Methods, Solid Mechanics, Heat Transfer, Dynamics, Manufacturing Processes, Statics, Thermal System Design, Machine Elements, Thermodynamics, Fluid Mechanics, Material Science
Hands-On: Lathe, Mill, CNC, GD&T, Manufacturing, Metalworking, Data Acquisition, Mechanical Assembly, Circuits