

# Ashton Gomes

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## Education

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

## Experience

<b>Vehicle Dynamics Lead</b> , Stony Brook Motorsports – Stony Brook, NY	Aug 2023 – Present
• 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 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.	

<b>Fellow - AI Trainer and Reviewer</b> , Handshake AI – Remote	Oct 2025 – Present
• 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.	

<b>Project Management Intern</b> , Dormitory Authority of the State of New York – New York, NY	May 2025 – Aug 2025
• 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.	

<b>Budget Coordinator</b> , Essential Elegance Inc – New York, NY	May 2023 – May 2024
• 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

<b>Senior Design - Shock Dynamometer</b>	Aug 2025 – Present
• 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.	

<b>7 DOF Manipulator Analyzer</b>	Nov 2025 – Dec 2025
• 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.	

<b>PID Turntable Controller</b>	Oct 2025 – Dec 2025
• 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.	

<b>Samsung Galaxy Phone Case Prototyping</b>	Apr 2025 – May 2025
• 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