John P. Neal

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Education

Texas A&M University College Station, TX

B.S. Mechanical Engineering, Honors Program | GPA: 4.0/4.0 *May 2028 (Expected)*

- Brown Foundation Scholar; President's Endowed Scholar; National Merit Finalist; Tau Beta Pi Engineering Honor Society

Technical Experience

Undergraduate Research Assistant August 2026 – Present

Friesen Haptics Lab, Texas A&M University *College Station, TX*

- Assist a Ph.D. candidate in troubleshooting and designing a vibrotactile sculpture that renders virtual textures through embedded vibration motors

Manufacturing Automation Intern June 2026 – August 2026

Bray International, Inc. *Houston, TX*

- Audited and cycle-counted machining tools and inserts using Bray's CribMaster inventory system
- Reverse-engineered 10+ machining fixtures from physical measurements, recreating the assemblies in SolidWorks and producing manufacturing drawings with GD&T per ASME Y14.5
- Reorganized fixture storage to streamline retrieval and return of active and retired fixtures

Mechanical Engineer August 2025 – May 2026

Texas A&M University Robotics Team and Leadership Experience (TURTLE) *College Station, TX*

- Designed the L1 linkage and three-axis wrist mechanism for a 6-DOF laboratory robotic arm, iterating SolidWorks assemblies through FEA and physical 3D-printed prototypes on a 13-person team
- Performed joint torque and moment analyses to size stepper motors, then evaluated motors and drivetrain hardware across torque capacity, backlash, mass, footprint, cost, and lead time

Director of Development *May 2026 – Present*

- Co-direct a semester-long robotics development program for 200+ members, developing modules in mechanical design, GitHub, ESP32 programming, and motor/servo control and coordinating a capstone design competition

Technical Projects

5-DOF Robotic Manipulator | *ESP32, Arduino IDE, C++, Inverse Kinematics* June 2026 – July 2026

- Designed and assembled a 5-DOF robotic arm from servo motors and modular metal brackets, sizing components for torque requirements and verifying geometry, range of motion, and mechanical compatibility
- Derived inverse-kinematics equations and developed a Desmos simulation to calculate joint angles for target end-effector positions and visualize the manipulator's reachable workspace
- Programmed an ESP32 in C++ via the Arduino IDE to control the servo joints, implementing joint-space trajectory interpolation for smooth motion planning between target positions

Re-Direct | *Python, Pygame, Pygbag, Git* July 2025

- Built a real-time Pygame rendering engine with responsive input handling and collision logic alongside one collaborator during a 48-hour hackathon
- Optimized and deployed the engine for browser-based execution through WebAssembly using Pygbag

Leadership & Activities

President April 2026 – Present

Texas A&M University Fencing Club *College Station, TX*

Vice President *April 2025 – April 2026*

- Lead a 60+ member organization and liaise with Texas A&M Rec Sports on venues and practice scheduling
- Direct fundraising generating $9,000+ annually and host an intercollegiate Épée tournament drawing 150+ competitors from universities across Texas
- Compete as Épée Team Captain; won the Individual Épée title at the 2026 USACFC National Championship

Technical Skills

CAD & Design: SolidWorks, Onshape, GD&T, ASME Y14.5, DFM, Test Fixture Design
Programming & Analysis: Python, C++, OpenCV, NumPy, LabVIEW, Git, Desmos
Electronics & Controls: ESP32, Arduino, Servos, Breadboarding
Fabrication & Prototyping: 3D Printing, Laser Cutting, Rapid Prototyping