# WILL C. FORTE

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Project Website

## EDUCATION

**Rutgers University–New Brunswick**, Piscataway, NJ — Projected Graduation: May 2027

*B.S. in Mechanical Engineering with Minor in Mathematics & Computer Science*

- 3.78 GPA; Aresty Fellow (1.96% acceptance); Engineering Honors Academy Scholar (top 5.7% of incoming class)
- Researcher at Rutgers Robotics and Automation Lab; RUAutonomous Hardware Team; EHA Photographer, SHE

**Relevant Coursework:** Honors Intro Linear Algebra, Honors Calculus III, Honors Statics, CAD, Leadership Communic.

**Academy of Math, Science, and Engineering**, Rockaway, NJ — June 2024

- 3.97 GPA; 4-Year CAD/Product Development Curriculum; 11 AP Classes
- FTC Robotics, Robotics Independent Study Program, Senior-Year Robotics Research Internship at NJIT

## EXPERIENCE

Aresty Research Fellow, **Rutgers PRACSYS Lab**, New Brunswick, NJ — May 2025

- Incoming summer researcher in computational robotics (1.96% acceptance rate)

Research Assistant, **Rutgers Robotics, Automation, & Mechatronics Lab**, Piscataway, NJ — October 2024 - Present

- Implemented scikit-learn ML/AI to approximate the regions of attraction of high-dimensional dynamical systems
- Designed the first all-metal chassis for Rutgers' two-legged robot for IMU vibration reduction
- Reproduced CMU Lidar-based ROS SLAM stack for autonomous quadruped exploration & obstacle avoidance

Research Assistant, **Rutgers Advanced Controls Lab**, Piscataway, NJ — June 2024 - October 2024

- Developed low-level quadcopter control architecture in ROS for PX4-MAVROS-Gazebo SITL simulator
- Created C++ PX4 library with CMake for controlling servos on a tiltrotor quadcopter
- Self-studied HKUST course on UAV control theory; assembled UAV platforms; configured iRobot Create 3 for ROS2

Research Assistant, **NJIT Swissler Innovative Robotics Lab**, Newark, NJ — June 2023 - June 2024

- Developed a prismatic robotic arm simulation in MuJoCo (Python) using Jacobian inverse kinematics
- Programmed ESP32 microcontrollers (C++) with onboard computer vision (OpenCV) in ESP-IDF

## PROJECTS

**Fully-Actuated Quadrupedal Robot (Project Page on willcforte.com)**

- Designed and fabricated a 12-servo quadruped robot using spare FTC motors, 3D-printing, and laser-cut gears
- Created model-based control loop using MuJoCo Python bindings and serial bus communication to execute a given pose

**Cuff-Link Electromyographic Assistive Device (Project Page on willcforte.com)**

- Developed assistive device for amputees to control PC via arm muscles, outperforming trackpad aim by 126 ms
- Presented final product to a crowd of 200+ at the 2024 Academy Enginering Showcase (2nd place)

**Toroidal and Uneven Blade Aeroacoustic Analysis (TUBAA; Read Manuscript on tubaa.dev)**

- Conducted CFD analysis of MIT Lincoln Lab toroidal propellers in ANSYS Fluent, showing reduction in tip vortices
- Mentored by Stanford PhD Candidate Gao Jun Wu and UC Davis Professor Seongkyu Lee

## TALKS

**Workshop: Introduction to the MuJoCo Simulator**, Rutgers University, N2E Robotics Club, February 2025

**The Cuff-Link Assistive Device**, Academy for Math, Sci., & Engg., AMSE Senior Showcase, May 2024

## AWARDS

- Rutgers Aresty Fellowship (1.96% acceptance rate) — 2025
- Rutgers Engineering Honors Academy Scholar (top 65 out of 1140 incoming engineers) — 2024
- Yale Physics Olympics Fermi Estimation 2nd Place — 2023
- FTC Robotics Think Award (for laser-cut manipulator) — 2023
- NJAAPT Physics Olympics Champions (first in school's history – 15 years) — 2023

## SKILLS

**Software:** Robot Operating System (ROS), Ubuntu, Git, scikit-learn, OpenCV, MuJoCo, Gazebo, PX4, ESP32, Arduino

**Languages:** C++, Python, MATLAB, Java, LaTeX, Shell Scripting, Vue.js, HTML/CSS/JS, Flutter

**CAD/CFD:** SOLIDWORKS, Fusion360, Onshape, ANSYS Fluent, AutoCAD

**Fabrication:** Manual Mill, 3D Printing, Laser Cutting, Plasma Cutting, Soldering, Breadboarding, Electrical Schematics