

Dat Man Ho (David)

407 Gamewood Drive, Spring, Texas 77386

homandat2002@gmail.com

LinkedIn: [david-ho-tamu24](#)

GitHub: [daviddoo02](#)

(832)-283-8209

Texas A&M University, Bachelor of Science in Mechanical Engineering

Graduation: May 2024 **Undergraduate GPA:** 3.6

CAD suites: Solidworks, Inventor, Blender

Software Languages: Python, XML, Markdown, C

Software middleware: Robotics Operating System (ROS)

Manufacturing: FDM/SLS/SLA 3D printing,

laser/plasma cutting, lathe, mill, & wood working.

Languages: English—fluent, Vietnamese—native

Experience:

Unmanned System Lab, Texas A&M

March 2022-Present

Undergraduate Research Assistant/ Technician

Supervisors: Srikanth Saripalli, Alvika Gautam

Drone Swarm Exploration and Mapping

Autonomous exploration and mapping experiments using a drone swarm equipped with range finders.

- Developed a Python script using Jinja to procedurally generate worlds to run simulated experiments.
- Designed and conducted real experiments using motion capture system to estimate drone position.

Autonomous Off-road Diesel-engine Forklift

Retrofit a manual diesel-engine forklift into a GPS-guided robot to assess off-road capabilities on diverse terrains.

- Designed and built mounting bracket for computer, power bank, camera, LiDAR, IMU, and GPS, which successfully endured harsh vibration and movement of vehicle.

Autonomous Golf Carts

Polaris Golf Carts mounted with various sensors as a platform for autonomous vehicle testing.

- Actively engaged in experimental design and setup which contributed to large-scale data collection of multimodal systems (cameras, IMU, GPS, UWB).

Relevant Projects:

Personal: [Legolas an open-source biped](#)

August 2022-Present

Goal: Create an open-source bipedal robot platform using ROS as framework.

- Successfully designed a bipedal robot using widely accessible hobby servos, IMU, and Raspberry Pi.
- Rewired servos to read encoder position and filtered data noises using various filtering techniques.
- Developed a numerical forward-inverse kinematics solver using Gradient Descent Algorithm.
- Developed a [ROS package](#) to control and manage biped through modular Python nodes:
 - **Central processing subscribing/publishing node** – processing feedback and sending joint commands - can be run on a separate, more powerful computer while still sending commands to the biped.
 - **Action subscriber node** – manage and actuate all servos given joint commands.
 - **Feedback publishing node** – read feedback from IMU and servo encoders.
- Successfully implemented a walking gait for the biped through algorithmic path planning.
- Created URDF of biped from Solidworks Assembly to be used in simulation with a neural network.

Senior Capstone: Downhole Tool Validation Device—Sponsored by NOV

August 2023-Present

Goal: Design and construct a mechatronic device to validate drilling tools' sensors at remote rig sites.

- Implemented a force feedback PID controller using load cell readings to precisely apply the desired force via linear actuators.
- Developed modular Python scripts using ROS as a framework to streamline code development between six-team members.
- Established testing methods and protocols for assessing sensors on drilling tools subjected to axial loading, tension/compression, torsion, and bending.
- Created an algorithm to interpret strain gauge data, enabling the determination of stress/strain conditions on the drilling tool.
- Designed the electronic schematic for a miniature downhole tool, integrating components such as Raspberry Pi, 16 strain gauges, IMU, load cells, amplifiers, DC PWM motor drivers, linear actuators, and stepper motors.