

# DEREK CHIBUZOR

Los Angeles, CA | (201) 316-3229 | [derekchibuzor777@gmail.com](mailto:derekchibuzor777@gmail.com) | [linkedin.com/in/derekchibuzor](https://www.linkedin.com/in/derekchibuzor) | [derekc22.github.io](https://derekc22.github.io)

## EDUCATION

University of Southern California	Los Angeles, CA
Master of Science in Mechanical Engineering	Aug. 2025-Dec. 2026
* GPA: 3.90/4.00   Mechatronic Systems, Robot Dynamics & Control, Linear Systems, Flight Vehicle Stability & Control	
Bachelor of Science in Aerospace Engineering	Aug. 2021-May 2025
* GPA: 3.62/4.00   Computer-aided Design, Dynamic Systems, Linear Control, Computational Methods, Flight Mechanics	

## WORK EXPERIENCE

Neros Technologies	El Segundo, CA
Autonomy – Controls Engineer	Jan. 2026-Present
* Develop, implement, and tune <b>flight control algorithms</b> that directly enable <b>advanced autonomy</b> onboard the Archer AI system.	
Dynamic Robotics and Control Laboratory	Los Angeles, CA
Research Assistant - Software	Jan. 2025-Present
* Developed IK joint-space <b>PD controller</b> for 16-DOF robot, enabling leg trajectory data generation for system identification tasks.	
* Engineered <b>system identification</b> framework for <b>Sim2Real</b> transfer via gradient- and sampling-based <b>hybrid optimization</b> .	
* Trained <b>evolutionary algorithms</b> and residual physics networks to model actuator dynamics for 24-DOF robot, reducing error by 78%.	
* Constructed <b>diffusion model</b> framework for generating full-body loco-manipulation trajectories from Unitree G1 motion capture data.	
Lawrence Livermore National Laboratory	Livermore, CA
Computational Engineer Intern	June 2025-Aug. 2025
* Wrote IK task-space <b>PD controller</b> for 6-DOF UR3e, saving 5+ hours of manual path planning while achieving 0.1 mm tracking error.	
* Trained <b>reinforcement learning</b> policies for pick and place tasks, reducing episode length by 20% with transformer feature extractor.	
* Utilized implicit and explicit <b>structural dynamics</b> codes to perform <b>modal analysis</b> of jointed beam subject to broadband excitation.	
Northrop Grumman	Roy, UT
Mechanical Engineer Intern	June 2023-Aug. 2024
* Constructed 2-DOF reduced-order <b>Simulink</b> model of <b>shock-isolated system</b> , saving 240 hours of full-scale FEA computation.	
* Wrote <b>post-processing</b> scripts to characterize transient responses of 5 subterranean structures subject to 11 seismic excitations.	
* Designed <b>CAD</b> assemblies, performed <b>FEA</b> , and wrote RFIs for elastomeric shock isolators and subterranean maintenance access doors.	
Amazon & Information Sciences Institute	Los Angeles, CA
GNC Engineer Intern	June 2022-Aug. 2022
* Developed <b>vision-based navigation</b> software, enabling <b>pose estimation</b> for 3-DOF rendezvous and proximity operations ( <b>RPO</b> ).	
* Achieved sub-160 ms latency localization and tracking of 12 infrared LED targets up to 2.50 m from <b>Raspberry Pi</b> NoIR camera.	

## SKILLS & CREDENTIALS

- \* **Engineering:** Siemens NX, Simulink, LabVIEW, Abaqus
- \* **Other:** PyTorch, MuJoCo, CasADi, JAX, Gymnasium, Stable-Baselines3, OpenCV, ROS2
- \* **Programming:** Python, C++, MATLAB, Java, JavaScript
- \* **Skills:** Robotics, Dynamics, Control, GNC, Optimal Control, Trajectory Optimization, System Identification, CAD, GD&T, FEA

## PROJECTS

- \* **Multi-Agent DMPC:** Distributed and decentralized model predictive control (DMPC) for high-DOF multi-agent systems.
- \* **Bipedal Robot Control:** Various controllers (e.g., QP, PD, MPC) for 7-DOF bipedal robot balancing, walking, and running.
- \* **Dual-Axis Control System:** Sun-seeking, multithreaded, 2-DOF electromechanical solar array articulation module for 3U CubeSat.