Yun (Robert) Dong

Ph.D. student in Quantitative Biosciences

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Georgia Tech Ph.D. student; B.S. in Biomedical Engineering, UNC-Chapel Hill. Experience in somatosensory electrophysiology, neural signal analysis, functional connectivity, behavioral tracking, embedded sensing, and experimental hardware design.

Education

Georgia Institute of Technology Aug 2026 - Present

Ph.D. Quantitative Biosciences

University of North Carolina at Chapel Hill Sep 2022 - May 2026

B.S. Biomedical Engineering

- GPA: 3.5 / 4.0

Experience

Research Assistant Feb 2024 - May 2026

Favorov Lab, University of North Carolina at Chapel Hill

Mentor: Oleg Favorov

- Studied tactile processing in rat somatosensory cortex with multisite NeuroNexus probes; extracted spikes and clustered units.
- Assessed transcranial focused ultrasound safety with histology of stimulated cortical tissue.
- Built a YOLO model for rat paw tracking and feature extraction in live infrared video.
- Designed MRI tests of millimeter-scale rare-earth fiducials to guide chronic implantation.
- Built behavioral setups with Arduino, AutoCAD, laser cutting, and 3D printing.
- Supported acute and chronic implantation, anesthesia, artificial cerebrospinal fluid preparation, and animal monitoring during and after surgery.

Team Lead and Electronics Lead Aug 2025 - May 2026

Biomedical Engineering Senior Design Capstone

- Built a two-IMU orientation-tracking prototype with MPU9250 sensors, quaternions, and Madgwick filtering for real-time relative joint angles.
- Added calibration, Euler-angle conversion, startup zeroing, live serial visualization, and abnormal-motion threshold alerts.
- Built Python tools to receive sensor data and plot joint-angle changes live.

Teaching Assistant, BME 207 Biomedical Electronics Aug 2025 - Dec 2025

University of North Carolina at Chapel Hill

- Led interactive electronics labs and office hours to reinforce course concepts.

Research Assistant May 2025 - Sep 2025

Wallis Group, University of California, Berkeley

Mentor: Joni Wallis

- Studied decision-making in primate hippocampal-prefrontal circuitry.
- Built MATLAB software to synchronize MonkeyLogic behavioral data with Plexon spikes, plot spike density, and run PCA and regression.
- Measured cross-trial phase alignment in local field potentials with the Hilbert transform.

Research Assistant Feb 2023 - Jan 2024

Zhang Research Group, University of North Carolina at Chapel Hill

Mentor: Wei Zhang

- Designed circuit hardware for gain-driven polariton experiments with Fusion 360 and CNC milling.
- Studied ways to improve control of magnon-photon interactions.

Research Assistant Sep 2022 - Jan 2023

Yale University School of Medicine

Mentor: Chiang-Shan R. Li

- Studied links between drinking severity and resting-state hypothalamic connectivity using MATLAB statistics.

Awards

Abrams Scholars 2024

Joint Department of Biomedical Engineering at UNC

Selected for competitive mentored undergraduate research, October 2024-May 2026.

BME Travel Award 2025

Joint Department of Biomedical Engineering at UNC

Supported Society for Neuroscience Annual Meeting travel to San Diego.

Publications

Drinking severity mediates the relationship between hypothalamic connectivity and rule-breaking/intrusive behavior differently in young women and men: an exploratory study Aug 2024

Quantitative Imaging in Medicine and Surgery, 14(9), 6669-6683

Guangfei Li, Yun Dong, Yu Chen, Bao Li, Shefali Chaudhary, Jinbo Bi, Hao Sun, Chunlan Yang, Youjun Liu, Chiang-Shan R. Li

View publication

Combinatorial split-ring and spiral metaresonator for efficient magnon-photon coupling Mar 2024

Physical Review Applied, 21(3), 034034

Yuzan Xiong, Andrew Christy, Yun Dong, Andrew H. Comstock, Dali Sun, Yi Li, James F. Cahoon, Binbin Yang, Wei Zhang

View publication

Skills

Programming and analysis
MATLAB, Python, PyTorch, TensorFlow, C/C++, computer vision, signal processing

Embedded systems and design
Arduino, IMU sensing, Fusion 360, AutoCAD, Onshape, PCB design, CAD modeling

Fabrication
3D printing, laser cutting, CNC milling, CNC lathe

Leadership and Service

Vida
Assisted doctors in rural Costa Rica for 30 clinical volunteer hours.

Delta Chi Fraternity
Executive member for alumni relations.

Student organizations
Member of the Biomedical Engineering Society, Biomedical Microdevices Club, and UNC Boxing Club.