# Brandon Wang

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## EDUCATION

**The Ohio State University** Columbus, OH

*B.S. in Electrical Engineering* | *Honors Research Distinction* *Expected May 2027*

Areas of Interest: Circuit Design, Radio Frequency (RF), Wearables, Medical Devices, Consumer Electronics

## WORK EXPERIENCE

**GE Appliances** | Electrical Engineering Co-op Louisville, KY

*Dishwashers, New Product Introduction* *May 2025 - Aug. 2025*

- Resolved **3 FRACAS** items though **root cause analyses** to drive long-term reliability and design improvements
- Managed over *100+* dishwashers in field tests, ensuring up-to-date software, continuous operation, and test reliability
- Designed a **ESP32 shield** using **VL53L0X infrared sensor** in **Cadence Allegro** to transmit distance data wirelessly
- Built a **Python**-based program to automate weekly OTA software updates and system logging, eliminating manual effort
- Reworked dishwashers in test labs to integrate a new LCD from an alternate manufacturer, ensuring *100%* functionality

*Refrigeration, Cost of Quality* *Jan. 2025 - May 2025*

- Conducted in-depth root cause analyses on refrigerator circuit boards to identify defects and ensure quality control
- Designed test board panels to efficiently compare *5+* different LED color temperatures and its effect on food appearance
- Performed **electrostatic discharge testing** to locate common power rail failure in multi-door refrigerator main boards
- Conducted autofill testing to determine reliability of new ultrasonic sensors with variations in sensitivity and coupling
- Used **accelerated life testing** methods to evaluate the long-term reliability of various LED models for refrigerators

## RESEARCH EXPERIENCE

**Wearable and Implantable Tech., Electroscience Lab** | Undergraduate Researcher Columbus, OH

*Circuit Design for Interactive Game for Children* *Aug. 2025 - Present*

- Leading **wearable watch** designs for touch based games for kids, in collaboration with Nationwide Children's Hospital
- Designing **12MHz transmitter and receiver** schematics and layouts, keeping total footprint under a strict 40mm
- Developing **embedded firmware** for **nRF52840 microcontroller**, processing analog to digital inputs with low latency
- Boosted system capability by *200%* with the inclusion of **analog IMU and FSR sensors** to enable more variety inputs
- Simulated **Chebyshev filters** to optimize design for passband frequency, increasing signal transmission integrity

*Magnetocardiogram (MCG) Sensors* *Jan. 2024 - Jan. 2025*

- Created a new coil array housing to boost testing efficiency and enabling color customization when testing with children
- Simplified magnetocardiogram testing setup by *50%*, increasing **signal-to-noise ratio** by *10%* and ease of testing
- Applied **empirical mode decomposition** to a program to extract one averaged heartbeat frame from large datasets
- Constructed a **user interface** in **LabVIEW** to collect data from magnetocardiogram and electrocardiogram apparatus

## PROJECTS

**Rotisserie Function For Indoor Meat Smoker**

- Prototyped a modular H-bridge AC motor controller with main voltage rail isolation to enable variable speed control
- Integrated an AC motor and light into the existing indoor smoker system with minimal structural and electrical changes

**Assistive Device for Push Strollers**

- Created an adaptable stroller attachment to ease physical demands of caregiver by assisting in pushing a stroller up hills
- Integrated ratchet systems in wheel hub to enable coasting at higher speeds without additional resistance from motor

## LEADERSHIP

**Terrace Park Country Club** | Head Swim Coach Cincinnati, OH

- Led engaging practices for *50+* swimmers ages 7 to 12 to reach both individual and team goals in city-wide competitions

## SKILLS

**Software:** Cadence, KiCad, EasyEDA, LTspice, Tableau, LabVIEW, Fusion360, Solidworks, Windchill, Microsoft Office
**Benchtop Tools:** Oscilloscope, Digital Multimeter, Spectrum Analyzer, Waveform Generator, Power Supply, SMD Soldering
**Programming:** Arduino, ESP32, CircuitPython, MATLAB, Python