Rita Achebe Junior Hardware Engineer

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PROFILE SUMMARY

- **Junior Hardware Engineer** with **3 years** at **Bose**, building the **charging case and earbud boards** for a wireless earbuds line through EVT and DVT, after a hardware co-op at **iRobot**.
- Designs in **Altium Designer**, brings up **STM32** and Bluetooth boards with a **Tektronix** scope and a Saleae analyzer, and writes **Python** scripts for the bench and the DVT stations.
- Knows **prototype bring-up**, **DVT test plans**, **drop and sweat testing** for wearables and **lifecycle checks** on small parts, and logs every failure in Jira before the next build.
- Works with **acoustics, mechanical and firmware** engineers in Framingham and joins the weekly **build review** with the contract manufacturer's engineering team.
- Wrote the team's **charging case bring-up checklist**, trained **2 co-ops** on the DVT stations in 2025, and holds the **IPC CID** certification.

TECHNICAL SKILLS

EDA & Design Tools:	Altium Designer, Altium 365, KiCad (coursework)
Processors & Interfaces:	STM32, Bluetooth LE SoCs, I2C, SPI, I2S, USB-C
Signal Integrity & Simulation:	LTspice, MATLAB, HyperLynx (training)
Lab & Debug Tools:	Tektronix oscilloscopes, Saleae logic analyzers, ST-LINK, Python, thermal camera
Reliability & Validation Methods:	DVT test plans, drop testing, IPX4 sweat and splash tests, thermal cycling, FMEA reviews
Production & DFM:	EVT/DVT builds, DFM checklists, test point placement, functional test, IPC-A-610
PLM, Sourcing & Compliance:	Arena PLM, Jira, Octopart, RoHS, FCC Part 15 pre-scans

EDUCATION

Northeastern University — **B.S. in Electrical Engineering** — Boston, MA · Sep 2019 to May 2023

WORK EXPERIENCE

Bose — **Hardware Engineer** — Framingham, MA · Jul 2023 to Present

- Drew the schematic for the earbud charging case board in **Altium Designer**, with an STM32, a battery charger IC and the pogo pin contacts, and cleared design review with just **4** minor comments.
- Brought up 3 EVT and DVT builds of the case board with a Tektronix scope and a Saleae analyzer, and traced a charging fault to a swapped pogo pin net in **2 days**.
- Wrote **Python** scripts for the DVT charging tests that cycle 24 cases at once, which cut a full test run from 4 days to **1 day**.
- Ran 1 m drop and IPX4 sweat tests on 60 earbuds with the reliability lab, traced a cracked battery tab joint, and a wider pad took drop survival from 88% to **100%**.
- Checked lifecycle status and lead times for all **142** parts on the case BOM in Octopart, and found approved alternates for the 9 that had only one supplier.

iRobot — **Hardware Engineering Co-op** — Bedford, MA · Jul 2022 to Dec 2022

- Compared **3** IMU options for a robot vacuum on noise, power and cost in a trade study that the senior engineers used to pick the part for the next model.
- Worked with mechanical engineers on the bumper sensor board's connector and cable route, shortening the harness by **30%** to fit the new chassis.
- Wrote the functional test checklist for **3** sensor boards ahead of an EVT build at the contract manufacturer, and logged each failure in Jira.