Ian Ross Richardson

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SUMMARY: Junior in Electrical Engineering interested in robotics and biomedical devices

EDUCATION

Yale University, New Haven, CT — Expected Graduation Winter 2025
BS in Electrical Engineering (ABET), GPA: 3.92 (STEM), 3.78 (Overall)
Relevant Courses: Computer Architecture (A), Data Structures & Algorithms (A), Communications & Control (A), Probability & Statistics w/ Computation (A), Circuits & Systems (spring), Signal Processing (spr.), Mechatronics (spr.)

The Roxbury Latin School, West Roxbury, MA — Graduated 2020
GPA: 4.0 (unweighted) / 1570 SAT
Awards: Summa Cum Laude, National Merit Scholar, AP Scholar with Distinction, Spanish Language Prize, Music Prize

WORK EXPERIENCE

Proteowise inc., *R&D Engineer*, New Haven, CT — January 2021 - Present
- Offered promotion to Senior Engineer after seven months as full-time intern during Spring ‘21 gap term & Summer. Supported my contributions part-time during sophomore & junior year, returned as employee Summer ’22
- Designed, built, and iterated on electrical, mechanical, and fluidic prototypes for a novel automated proteomic assay, bringing product from benchtop proof-of-concept to functional engineering prototype
- Conducted controlled validation and exploratory experiments using self-built apparatuses. Presented quantitative results with statistical analysis directly to CTO to inform reliable design choices to be included in final product
- Communicated findings to manufacturing partners, resulting in successful construction of alpha production unit
- Trained new engineers and helped foster collaborative team environment as team grew from 5 to 15

The Aldridge Lab at Tufts Medical Center, *Research Assistant*, Boston, MA — Summers 2018, 2019
- Worked directly with PI programming novel machine learning approach to determination of method of action of treatments for tuberculosis using MATLAB. Implemented version control using git for fluid remote collaboration.
- Co-author on publication *Morphological profiling of tubercule bacilli identifies drug pathways of action* https://www.pnas.org/content/117/31/18744

SKILLS

- Programming: fluent in Java, Python, C, MATLAB, R, JS/HTML, quick to learn new languages
- Circuit design & layout (Eagle), board assembly (thru hole, SMD), testing (digital oscilloscopes), and modification
    - Integration with microcontrollers and single board computers (Arduino, RPi). Basic FPGA design (Verilog)
- Mechanical Design & Manufacturing
    - Complex part and assembly design using SolidWorks. Validation using motion study
    - Rapid production of functional prototypes at all levels of design maturity
    - Integration with sensors (analog & digital) and electronic + software control (including PID)
    - Laser Cutting (with CorelDraw, SolidWorks), 3D Printing (FDM, SLA), opto-mechanical assemblies (THORlabs + custom parts), fluidics (valves, pumps, tubing), precise work with wood, metal, and plastics
- Amateur Radio operator (General Class). Familiar with operation and design of wireless/RF hardware.
- Strong and fluid presenter for both technical and non-technical audiences
    - Finalist at International Public Speaking Competition, 2019

LEADERSHIP EXPERIENCE

Roxbury Latin Robotics Team *President, Founding Member* — 2016-2020
- Started VEX Robotics team with 4 classmates. Competed yearly at regionals, qualified for World Championship 2018
- Designed teaching curriculum for middle school students to welcome new members of all experience levels

The Yale Alley Cats (Internationally Touring A Cappella Group) *Performance Manager* — 2021-Present