Hezekiah Gabaldon

Curriculum Vitae

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Education

2022 – 2024 **Masters of Science**, Duke University
- GPA: 3.81
- Specialization: Quantum Computing

2019 – 2021 **Bachelors in Computer Science**, University of Texas at Dallas
- GPA: 3.985
- Honors: Summa Cum Laude

2017 – 2019 **Associates of Science**, Richland Community College

2017 – 2019 **High School Diploma**, Richland Collegiate Highschool

Academic Accomplishments

2024 **School on Univalent Mathematics Attendance**, University of Minnesota
I attended the univalent school on mathematics at the University of Minnesota. This week was a wonderful experience and has only heightened my passions for homotopy type theory.

2023 – 2024 **Voltage Control Solution Generation**, Duke University
I helped integrate and extend a platform for generating voltage control solutions in Python based on an orthogonal basis expansion of sampled voltage data. This data was provided by Sandia National Labs and has been used to generate potential control solutions for Phoenix, Peregrine, and Enchilada traps at Duke. Recently we shared our library with Sandia National Labs for internal distribution and are anticipating to publish the analytically based solutions soon. Following the analytical basis expansion of the trap, I currently work on providing numeric solutions for more complex trapping procedures, like splitting, merging, and long chain management. This software seeks to be a fully encompassing package for the generation and control of voltage solutions in ion-traps and could not have been accomplished without the help of Andrew Van Horn, Or Katz, Marko Cetina, and Yichao Yu.

2023 **IEEE Quantum Week 2023**, Duke University
During 2023's IEEE Quantum Week presentation in Washington, I presented some of my work for voltage control solutions in a poster presentation.

2021	**Gamify Parks with CHST**, University of Texas at Dallas and Children's Health Hospital

During my Fall 2021 Capstone project at UTD I worked with a team of UTD students to create a product called Gamify Parks for Children's Health Hospital. The project was made in Unity and deployed to IOS and Android. The application's goal was to get kids active and inform them about healthy practices. It consisted of two games as a demonstration of the concept. Food finder is an AR (implemented with Wikitude) game about food trivia where children learn the health benefits of foods and walk in an AR environment to select the correct answer. Beacon dash was a GPS Map (implemented with Mapbox) based game which had kids get active by running between beacons and answering exercise trivia. We got a positive response from CHST and they intend to expand this project in the next semester by adding more games to get ready to deploy in Spring/Summer 2022.

2021	**Library Database**, University of Texas at Dallas

Designed a web-application that utilized the LAMP stack to implement a Library Database. The library data was parsed into SQL then manipulated with PHP. Users could create accounts, check out books, check in books, and manage fines. This can be viewed on hezekiahszg.xyz.

2021	**Linux Daemon For Duplicating and Encrypting Files**, University of Texas at Dallas

Designed a Linux Daemon in C++ which would watch a directory and copy file versions to another directory. These files have the option to be encrypted and the daemon could intercept signals.

2021	**Post Address to XML Compiler**, University of Texas at Dallas

This program would receive Post address data then use flex and bison to convert this information into XML format.

2020	**PIRCBOT and API Interaction**, University of Texas at Dallas

This program would parse JSON from 3 APIs using GSON to gain weather information, lunar information, and a quantum randomized number (from qrng.anu.edu.au). The bot could be interacted with on a chat client that was hosted on irc.freenode.net.

2019	**Best Capstone**, Richland Community College

Designed a web-application that could be used to keep track of patients by logging how they are doing. This application was implemented using the LAMP Stack and won Best Capstone for the year.

Programming Languages

- C++ and C
- Fortran
- Python
- Julia
- OCaml
- Haskell
- Coq
- Java
- PHP
- JavaScript
- LISP and Emacs LISP
- MySQL

○ Bash
○ Prolog

Volunteering

2018 – 2019   **Show Floor Volunteer**, SPCA of Texas
At the SPCA of Texas I worked on the show floor to help people meet dogs as well as to maintenance the show floor kennels.