

Gacoka Mbui

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Education

Minerva Schools at KGI, San Francisco, CA

Sep 2019 – Exp. 2023

Currently a candidate for a bachelor's degree in Computational Sciences (minor in Data Science and Statistics). Attending a select (2% acceptance rate) merit-based undergraduate program with a diverse student body and reimagined curriculum teaching the Habits of Mind and Foundational Concepts.

Work Experience

Market Research at Minerva Project

January 2020 - Current

Involved helping Minerva grow its network by identifying individuals, organizations, and opportunities for the Global Network Development team to engage through market research, micro-internships and collaborative country guides.

Research Intern at Citizens Climate Lobby

November 2019 - Current

Accountability lead of a group of five in a Social Sciences civic partner project directed to influencing community leaders and local organizations concerned with climate change. Recently helped passed the HR-763 bill at City Hall through lobbying, grass-tops outreach and letters to newspaper editors.

Volunteer at UNA-USA

November 2019 - Current

Assisted in humanitarian projects (such as fundraisers) as a youth volunteer or UNICEF and educational programs to promote the UN's goals of peace, justice and the betterment of life.

Cornerstone Coding Peer Tutor, Minerva Schools at KGI

Sep - December 2019

Involved supervising coding structured study sessions consisting of two groups each eight students coded in Python, holding drop-in office hours and grading weekly coding lab exercises to track student progress. There was a 30% increase in student average in assessments after the 4-month period.

Projects

[Carbon Zero Project](#) – a newly-formed team of six collaborated on an app designed during the [Science Hack Day 2019](#) hosted by GitHub. The game was designed in Unity 3D (C#) with a bit of Python for Carbon Footprint calculation and was intended to help individuals reduce their carbon footprints by being sustainable. Won 1st position for best design in Science Hack Day, 1st position on Climathon (city-wide) and recently secured funding from Square, Inc, [launched the app](#) on the Google Play Store as well as start a Kickstarter funder program page.

[Trash Classifier](#) – a computer vision algorithm that takes a live feed of your phone's camera and classifies trash into compost, recycle or landfill based on the material of the object. It uses a modified CNN model taught by Google's Teachable Machine and implemented to the website as an app using NodeJS and ExpressJS. The user also has a resource for more information through a voice assistant created using the Houndify API where questions on proper waste disposal and management can be answered. This project was created during the TreeHacks 2020 event at Stanford.

[SafePath](#) – a highly efficient route optimizing algorithm that helps users navigate the shortest and safest path to their destination. It uses nearest neighbors and k-opt swap heuristic to achieve this. The program runs on a polynomial time complexity of $O(N^3)$ but is assured to arrive at the global optimum given enough time. For example, by optimizing for the safest route from home to school, children can follow safest short path back and forth.

[Automatic Trading Algorithm](#) – Designed an automatic trading algorithm in Python the analyzes financial market data (mostly currency pairs), analyzes the data using fundamental and technical analysis then automatically places trades. The project saw a 5% growth using a demo account in the first week and an 8% aggregate growth in the second.

Accomplishments

Young Scientists Kenya – currently a member of a group of select students who came up with innovation ideas for the YSK and took on a leadership role of a group of three to exhibit a project on decentralized voting.

Kenya Science and Engineering Fair – Worked on a 3D scanner using Ultrasound and Infrared waves in 2017 as well as Opinion vote in 2018. The competition involved assessing a country-wide problem, designing experiments from hypothesis then analyzing the results. Reached the national level and took 1st position in both district and county levels winning the Physics category as lead researcher.