Collins Munene Kariuki

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Education

Pomona College Claremont, CA
Bachelor of Arts in Computer Science and Physics *May 2024*
GPA *3.76/4.0*
Relevant Coursework *Data Structures and Algorithms, Computer Systems, Computer Vision, Machine Learning*

Skills and Certificates

Programming Languages: Python, Java, Kotlin, C/C++, C#, SQL, JavaScript, HTML/CSS, Coq
Frameworks: React, Node.js, Flask, JUnit, FastAPI
Developer Tools: Unit Testing, Agile development, VS Code, Visual Studio, Git, GitHub
Libraries: Pandas, NumPy, Matplotlib, SymPy, OpenCV
Certificates: Software Engineering Virtual Experience (JPMorgan Chase and Co.), Front-End Developer Professional Certificate (Meta), Python for Data Science (IBM), Unity 2D Game Development in C# (Udemy)

Technical Experience

Computational Research Assistant May – August 2023
Simons Foundation *New York City, NY*
- Mastered essential Condensed Matter Physics (CMP) material, like the Hubbard model, reading over 200 pages of graduate-level textbooks and completing over 15 hours of online courses
- Modelled 4 complex compounds by writing over 5000 lines of Python code resulting in significant enhancement to the tight-binding model code for the TRIQS (Toolbox for Research on Interacting Quantum Systems) package
- Created a comprehensive tutorial, accessed by over 10 experimentalists, facilitating the effective utilization of my code for running experiments and interpreting outcomes within the tight-binding model framework

Extended Reality Researcher May – August 2022
Deggendorf Institute of Technology (DIT) – European Campus *Pfarrkirchen, Germany*
- Increased the accuracy of wound assessment by 30%, with the aid of Virtual Reality (VR) software using the Unity game engine and C#, contributing to more reliable telemedical experimental outcomes
- Crafted comprehensive telehealth lesson plans focusing on cutting-edge VR/AR/MR technologies, resulting in a remarkable surge in student engagement through the integration of real-world applications
- Coordinated interviews with 20 local medical professionals to understand rural healthcare challenges, informing a data-driven plan that improved telemedical consultations and enhanced healthcare access in underserved areas

Summer Research Fellow June – July 2021
David Harold Blackwell Summer Research Institute (DHBSRI) *Remote*
- Analysed Type I diabetic patients' Gastric Emptying Scan percentages using Python's Pandas library, applying autoregressive linear modeling techniques to identify key relationships and correlations
- Generated detailed reports outlining my findings, including statistical analyses and visualizations, which were presented in front of DHBSRI organizers with positive feedback on the accuracy and clarity of the data

Projects

Daily Sleep Tracker Mobile App | *Kotlin with Jetpack Compose* Dec 2023 - Present
- Develop a dynamic splash screen introducing the app's benefits and guiding users towards effective sleep tracking
- Integrate Google authentication for user sign up, ensuring secure and convenient access to the app
- Enable new users to log sleep data with an intuitive interface, featuring a date picker, sleep and wake time selectors, and automated sleep duration calculation
- Develop robust backend APIs, facilitating reliable data storage, retrieval, and management of user sleep logs

5C Hackathon, BrAIn Brawl | *C#, HTML, High-Level Shader Language* April 2023
- Utilized C# and Unity to develop *brAIn Brawl*, a 3D educational game designed to engage and educate young players, incorporating interactive gameplay elements
- Employed Autodesk software to create detailed 3D models that added depth to the user's interactive experience
- Integrated ChatGPT's OpenAI API to dynamically generate real-time subject-specific questions and answers for the player;
- Won best beginner project prize at the 5C Hackathon

Honors and Awards

Rhodes Scholarship Finalist: The Rhodes Scholarship is a fully funded, full time, postgraduate award which enables talented young people from around the world to study at the University of Oxford
RISE - Research Internships in Science and Engineering: Received international fellowship to complete a summer research internship at top German universities and research institutions
The Tilestone Physics Prize: Given annually to outstanding first-year or sophomore students in the introductory courses