ALEX OLUWASINA OlOWOOKERE

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EDUCATION

Bachelor of Applied Science   **University of Toronto**   *Toronto, ON, CA* **(09/2020 - 04/2025)**

- Major in Mechanical/Mechatronics Engineering with Minor In Robotics and Artificial Intelligence
- Recipient of US Steel Undergraduate Scholarship, John And Lena Demma Scholars Award, See UofT Award
- **Undergraduate Coursework:** Deep Learning Fundamentals, Circuit Design, Analog & Digital Electronics, Quality Control, Kinematics & Dynamics, Manufacturing Engineering, Numerical Methods, Heat & Mass Transfer, Design For Environment
- **Certificates:** Basic Machining Certificate, Solidworks Associate Certificate

SKILLS

- CAD (AutoCAD, Solidworks) | Finite Element Analysis | Ansys | Prototyping | 3D Printing | C# | Java | Python | C++ | C | SQL | Git | R |
- MATLAB | NumPy | PyTorch | Tensor Flow | Arduino

EXPERIENCE & DESIGN TEAMS

Firmware Engineer   **University of Toronto Formula Racing Team**   *Toronto, ON, CA* **(01/2022 - Present)**

- Developed telemetry systems (**C++**) and Programmed electronic hardware devices, including remote controls, to monitor and analyze car performance via ensuring an accuracy of 95.6%
- Implemented critical safety measures, such as a battery overheating failsafe, to report data to the Battery Management System when temperatures approached the limit of 60°C, ensuring optimal performance and safety.
- Optimized and maintained software applications within the vehicle, enhancing power unit performance, fuel efficiency, and energy recovery which led to a 20% increase in efficiency

Mechanical Designer(Brakes & Blades)   **UT Wind**   *Toronto, ON, CA* **(09/2021 - 04/2022)**

- Created 3D models utilizing SolidWorks and AutoCAD, contributing to a streamlined design iteration process and reducing time by 15%. Applied ANSYS simulations to conduct stress analysis, optimizing designs and boosting component durability by 25%.
- Categorically selected materials, resulting in a 30% enhancement in component reliability. Executed stress, strain, and fracture testing, ensuring designs met safety criteria and reducing failure rates by 20%.
- Ensured alignment with industry standards, resulting in zero regulatory violations. Additionally, implemented meticulous tolerancing measures during machining with allowances of ±0.0125mm to ensure precision and quality in the final product.

Strucural Integrity Engineer(Chasis)   **University of Toronto Formula Racing Team**   *Toronto, ON, CA* **(01/2021 - 04/2022)**

- Employed 3D printing, Finite Element Analysis (FEA) using ANSYS, and CAD tools like AutoCAD and SolidWorks to optimize component designs, reducing weight by an average of 10% while maintaining or improving performance under race conditions.
- Conducted materials properties testing, including stress, strain, and fracture testing, on key components, achieving a 20% increase in overall material reliability and ensuring compliance with rigorous safety standards.
- Utilized non-destructive testing methods, such as ultrasonic and magnetic particle testing, to detect defects and anomalies in components, contributing to a 25% reduction in component failure rates and enhancing overall quality assurance and reliability.

PROJECTS

- **Music Genre Classification Project - (Python, HTML, CSS, JavaScript):** developed a Music Genre Classification machine learning model utilizing a Pre-Trained CNN model, specifically AlexNet in PyTorch. Enhanced model performance by applying Stochastic Gradient Descent, reducing overfitting by 50%, and incorporated Dropout layers, resulting in a 30% decrease in vanishing gradient instances. The project involved custom Python scripts to collect and preprocess training data from YouTube and Spotify and predicted with a 94% test accuracy. **(01/2023 - 04/2023)**
- **CNC Pick and Place Machine Design Project (Solidworks):** Designed a CNC Pick and Place Machine project following the Cartesian framework using Solidworks. This approach ensured precise movement along the X, Y, and Z axes, optimizing accuracy and efficiency. Selecting gear ratios, high-torque motors, and advanced bearing choices, I achieved a 20% increase in efficiency, a 25% boost in pick and place speeds, and a 30% extension in estimated operational lifespan. Refactored the CAD designs to utilize streamlined manufacturing processes. **(09/2022 - 12/2022)**
- **Anti-Callus Formation Barbell (Solidworks, Ansys):** Produced cost-effective barbell solution targeting callus formation among typical gym enthusiasts. Utilized SolidWorks for integrating material properties and cost considerations into the design, featuring honeycomb grips for improved ergonomics. Rubber was selected to minimize grip slippage. Employed ANSYS for Finite Element Analysis, evaluating stress, strain, and fatigue across variable loads, leading to optimized structural integrity. Achieved a 25% cost reduction, a 30% load-bearing enhancement compared to market standards, and an estimated 20% decrease in callus formation through innovative design and analysis. **(01/2022 - 04/2022)**

COMMUNITY

- **Finance Director — National Society of Black Engineers UofT Chapter:** Lead a team of 4 students and contributed to Organizing NSBEHacks 2022 and 2023 Hackathons, securing $22,000 in funding, strengthening organizational influence through networking and partnerships. **(09/2021 - Present)**
- **Residence Advisor/Don — Chestnut Residence, University of Toronto:** Oversaw community development, social/educational programs, and crisis intervention for 1000 students, ensuring their well-being, fostering a supportive living environment. **(08/2022 - Present)**