

PETER ZOKORO

Mechanical Engineering Intern

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PROFESSIONAL SUMMARY

Mechanical Engineering Graduate Student skilled in SolidWorks, ANSYS Fluent, LabVIEW, GD&T, FEA analysis, and 3D modeling. Experienced in CFD simulations and product design, eager to apply technical expertise to innovative engineering projects.

SKILLS

- CAD & Manufacturing: SolidWorks, GD&T, CNC Machining, 3D Printing, DFM/DFA
- CFD & Structural Analysis: ANSYS Fluent, FEA (ANSYS, Abaqus), Heat Transfer Modeling
- Instrumentation & Control: LabVIEW, NI-DAQ, Sensor Integration
- Programming & Data Analysis: Python (Predictive Maintenance, Machine Learning for Engineering Applications)
- Materials & Processes: Welding, Failure Analysis, Statistical Tolerance Analysis

EDUCATION

University of Arkansas at Little Rock

Master of Science, Mechanical Engineering

Aug 2024 - May 2026

- Grade: GPA: 4.0/4.0
- Thesis: Green Energy Production using Dual-Bed Biomass Gasification Reactor
- Relevant Courses: Computational Fluid Dynamics, Mechanical Instrumentation & LabVIEW, Artificial Intelligence

Lagos State University, Ojo, Lagos, Nigeria

Bachelor of Science, Mechanical Engineering

Jan 2018 - May 2023

- Grade: CGPA: 3.74/4.0 (Top of the graduating class)

EXPERIENCE

University of Arkansas at Little Rock

Graduate Teaching Assistant

Little Rock, AR

Aug 2024 - Present

- Authored comprehensive manuals for new equipment, including Standard Operating Procedures (SOPs) and Maintenance Procedures, ensuring clear guidelines for efficient operation, troubleshooting, and preventive maintenance.
- Instructed students in **CFD simulations** using **ANSYS Fluent**, improving lab performance and reducing errors by **30%**.
- Guided experiments on fluid properties (laminar/turbulent flow, viscosities) and mentored technical documentation.
- Trained students on laboratory equipment (Brookfield viscometer, Osborne Reynolds Demonstration unit, Bernoulli's apparatus), leading to increased student proficiency and confidence in handling lab tools.

Ayoola Construction Engineering & Co.

Mechanical Engineering Intern

Jan 2022 - Jul 2022

- Co-supervised mechanical installations, ensuring compliance with design specifications and safety standards.
- Conducted quality control inspections, reducing material defects by **15%**.
- Collaborated with engineers and architects to resolve construction challenges.

Saheed Autos Limited, Lagos, Nigeria

Mechanical Engineering Intern

Lagos, Nigeria

May 2021 - Aug 2021

- Diagnosed and repaired mechanical faults on over **90 vehicles**, reducing job order backlog by **75%** through workflow optimization.
- Assisted in dismantling and assembling vehicle components alongside senior mechanics, using root cause analysis to ensure efficient reassembly and improve vehicle performance

RELEVANT PROJECTS

Drag Reduction in Fixed-Wing Unmanned Aerial Vehicles (UAVs)

Sept. - Dec. 2024

- Designed and developed 3D models of fixed-wing UAVs using SolidWorks
- Conducted Computational Fluid Dynamics (CFD) simulations using Ansys Fluent to investigate drag reduction techniques in fixed-wing UAVs.
- Modeled and analyzed various wing geometries and configurations to optimize aerodynamic performance and improve lift-to-drag ratio.
- Applied k- ω SST turbulence model to simulate airflow and predict drag forces at subsonic speeds.
- Presented design recommendations aimed at increasing UAV efficiency, endurance, and speed based on simulated data.

Smart Water Heater Monitoring System

Oct. - Dec. 2024

- Developed a system to monitor and control water heater temperature using J, K, and T thermocouples integrated with NI-DAQ hardware.
- Designed a LabVIEW interface with visual alerts indicating water temperature states: Too Cold, Just Right, and Getting Hot.
- Implemented logic to automatically turn the heater on/off based on temperature thresholds, ensuring energy efficiency and user safety.

Strain Measurement System Using LabVIEW

Nov. 2024

- Designed and implemented a LabVIEW-based system to measure strain on an aluminum beam using a quarter-bridge strain gauge setup.
- Calibrated the system with known weights and incorporated bending stress equations for accurate real-time strain-to-weight calculations.
- Achieved minimal error rates ($<0.5\%$) through data averaging and logged all readings to a spreadsheet for further analysis.

Aerodynamic Analysis of a Sedan with and without a Spoiler

Oct. 2024

- Conducted CFD simulations using ANSYS Fluent to analyze the aerodynamic effects of adding a spoiler to a sedan body.
- Generated high-quality meshes with inflation layers to capture boundary layer effects and used the k- ϵ turbulence model.
- A significant increase in drag (0.427 to 1.018) and a shift in lift coefficient (-0.211 to 0.096) were observed with the addition of a spoiler.

Water Level Monitoring and Control System

Oct. 2024

- Developed a LabVIEW program to monitor and regulate water levels in a simulated tank using inlet and outlet flow adjustments.
- Created a physical system with indicators for tank status (full/not full) and a graphical water level chart.
- Simulated and managed real-time water flow dynamics while ensuring system accuracy and stability.

Flow Around a 3D Airfoil (Wing)

Oct. 2024

- Simulated external compressible flow around a 3D airfoil using ANSYS Fluent with the k- ω SST turbulence model.
- Analyzed flow dynamics, lift, and drag coefficients for angles of attack at 3.06° and 6° in a transonic regime.
- Compared results to 2D airfoil simulations, highlighting the impact of induced drag and 3D flow complexities on aerodynamic performance.

Development of a Thermal Model for the Prediction of Temperature Distribution at Arc Welding Surface Aug 2022 - May 2023

- Conducted research on thermal modeling of arc welding processes
- Developed a mathematical model using the energy conservation equation and an analytical solution for the model.
- Used ABAQUS to conduct finite element simulations to validate the thermal model.

PROFESSIONAL AFFILIATIONS

- APEX Honors Member, National Society of Black Engineers
- Member, Institution of Mechanical Engineers (IMechE)