IBITOYE, Femi

Ph.D. Awaiting (Conferral Expected Dec. 2026)

PROFESSIONAL SUMMARY

- 7+ years of research and industrial experience involving composites manufacturing, composite mechanics, stress analysis, fracture mechanics, finite element analysis, material characterization and quality.
- Composites focused research at the master's and doctorate level. Taken 5 composite classes at the graduate level. Taken 2 FEA classes at the graduate level.
- Experienced in material characterization methods such as 3 and 4-point flexure, fracture toughness testing, single cantilever bend test, short beam shear, in-plane shear, transverse flexure, along with thermal characterization tests such as DSC and DMA. Quality methods like void volume testing, tap testing.
- Familiarity with composite fabrication methods such as resin infusion, wet layup, automated fiber placement, filament winding, autoclave molding, compression molding.
- Advanced engineering analysis in finite element method (FEM), finite difference method (FDM), laminate theory, composite failure criteria and mechanisms. Certified proficiency in CAD modeling.
- U.S. Person

EDUCATION

- **Doctor of Philosophy in Mechanical Engineering (*In progress*),** Colorado State University, Fort Collins, CO. Expected: December 2026. *Dissertation:* In-situ Consolidation of Continuous Fiber Thermoplastic Composites Using Commingled Yarn in a Hybrid Additive Technique
- **Master of Science in Mechanical Engineering**, Montana State University, Bozeman, MT 2018, **GPA : 3.83/4.00** *Thesis:* Experimentation and Finite Element Analysis of Repairs on Composite Laminates and Sandwich Beam Structures.
- **Bachelor of Science in Mechanical Engineering,** Olabisi Onabanjo University, Ogun, Nigeria. 2011

TECHNICAL SKILLS

2D and 3D Modeling	:	SolidWorks, AutoCAD, Inventor, Fusion360
Numerical Analysis	:	MATLAB, Python, FORTRAN
Engineering Analysis	:	ABAQUS, ANSYS, SolidWorks
Statistical Analysis	:	Design of Experiments, JMP, R
Specialization	:	Composites, Manufacturing, Research, Quality, Computational Analysis, Mechanics

WORK EXPERIENCE

GRADUATE ASSISTANT

Colorado State University, Fort Collins, CO — Aug. 2021 – Present

- Successful in scale-up manufacturing development of in-situ consolidation of continuous fiber composites employing commingled yarn as a substitute for thermoplastic prepreg. Took deposition rates from 100 mm/min to 900 mm/min while keeping voids below 2% and fiber volume fraction in the neighborhood of 50%.
- Funded under a DOE research grant to study additive manufacturing (AM) of composites for novel internal wind blade structure with radically reduced tooling.

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- Conducted experimental thermal analysis like DSC, DMA, mechanical characterization tests, fracture toughness experimentation, on in-situ consolidated thermoplastic composites.
- Composite structural modeling of grid stiffened structures using ABAQUS.
- Void volume testing, transverse flexure testing, short beam shear to evaluate composite quality.
- Computational analysis using partial differential equations and finite differencing to model fluid flow and heat transfer during processing.
- Administered and supervised laboratory courses for third-year undergraduate engineering students in Dynamics of Machines, Mechatronics, and Introduction to Materials.

MECHANICAL ENGINEER

Nationwide Tank and Pipe, New Braunfels, TX Aug. 2020 – Mar. 2021

Technical tools: AutoCAD, Inventor, Fusion 360

- Design of industrial fiberglass cylindrical composite storage tanks with reference to ASTM and API standards.
- Develop 2D and 3D manufacturing drawings for fiberglass tank fabrication.
- Structural analysis using hand calculations of hydrostatic pressure on tank wall, design against buckling of tank wall.
- Structural analysis of external forces like wind & seismic loads on fiberglass tanks.

AVIATION INSPECTOR

Aircraft Tooling Inc, Dallas, TX Jan. 2020 – Aug. 2020

- Knowledge of 14 CFR Part 43, 145 regulations towards maintaining compliance for continued airworthiness
- Non-destructive testing of aviation components using techniques like fluorescent penetrant testing and magnetic particle testing.
- Used various measurement and inspection tools to evaluate corrosion, nicks, damage on mechanical parts particularly landing gear parts.
- Used Standard Operating Procedures documentation and engineering repair documentation, to determine applicable repair procedures for restoring an aircraft landing gear part to an airworthy condition.
- Prepare repair orders for subcontracted repair jobs.

AVIATION INSPECTOR

Aviation Repair Resources, Arlington, TX Jul. 2018 – Dec. 2019

- Knowledge of 14 CFR Part 43, 145 regulations towards maintaining compliance for continued airworthiness.
- Used acceptable / approved data to determine applicable repair procedures for restoring an airplane metal or composite part to airworthy condition.
- Applied various inspection tools/techniques to evaluate damage limits and conduct performance checks.
- Create bill of materials for individual work orders for forwarding to Purchase Department.
- Communicate with shop floor technicians to maintain conformance with repair instructions.

RESEARCH & TEACHING ASSISTANT

Montana State University, Bozeman, MT Jan. 2015 – Dec. 2017

Technical tools: ABAQUS, ANSYS, LABVIEW, MATLAB

- Successful in modeling damage initiation and evolution for predicting repair effectiveness for composite structures in 3 dimensions.

- Repaired composites tested and analyzed the effectiveness of the repair.
- Conducted mechanical characterization experiments to determine material properties of composite specimens with reference to applicable ASTM standards.
- Conducted structural repairs using adhesive bonding and infusion bonding techniques, conducted fracture toughness tests on repair bonds using Double Cantilever Bend test and Mixed Mode Bending test.
- Created finite element models to analyze crack initiation and propagation in composites.
- Wrote user subroutine code (UMAT) in FORTRAN to analyze progressive damage behavior in composite materials and correlate with experimental results.
- Used two dimensional and three-dimensional cohesive zone elements to model delamination and cracking.
- Set-up laboratory tests using digital image correlation to capture full field strain behavior. Also employed strain gauges in capturing strain.

PEER-REVIEWED JOURNAL PUBLICATIONS

- **Ibitoye FA**, Radford DW (2025). *Additive Manufacturing of Sandwich Panels with Continuous Fiber Reinforced High Modulus Composite Facings.* Polymer Composites. 2025; 46(4)
- **Ibitoye FA**, Radford DW (2024). *Experimental and statistical study on the effect of process parameters on the quality of continuous fiber composites made via additive manufacturing*. Journal of Thermoplastic Composite Materials. 2024;37(12).

PEER-REVIEWED CONFERENCE PUBLICATIONS

- **Ibitoye FA**, Radford DW (2025). *Increasing Deposition Rates and Quality of Additively Manufactured High Fiber Fraction Continuous Fiber Composites.* Proceedings of Annual Technical Conference Society of Advanced Materials and Process Engineering (SAMPE), Indianapolis, IN, May 19-22, 2025
- **Ibitoye FA**, Radford DW (2024). *Additive Manufacturing of Continuous Fiber Reinforced Thermoplastic Composite Grid Stiffened Panels.* Proceedings of 39th Annual Technical Conference American Society of Composites, San Diego, CA, Oct 21-23, 2024

AWARDS

- 2024 American Society for Composites (ASC) Conference Travel Grant

PROFESSIONAL MEMBERSHIPS

- Member, Society for the Advancement of Materials and Process Engineering (SAMPE)
- Member, American Society for Composites (ASC)

REFEREES

Available on Request.