

JOSEPH BUKARI ABUGRI

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June 9, 1979

joseph.abugri@uenr.edu.gh

OBJECTIVE: Impact knowledge on students and collaborators.

EDUCATION

The University of Alabama, Tuscaloosa, Alabama, August 2019

PhD in Electrical Engineering, GPA: 3.4/ 4.0

Topic: “Switching Studies of Perpendicular Magnetic Anisotropy Materials and Magnetic Tunnel Junctions”.

Tuskegee University, Tuskegee, Alabama, August 2013

Master of Science in Electrical Engineering, GPA: 3.6 / 4.0

Thesis Topic: “Particle Swarm Optimization for the minimization of power losses in distribution networks using MATPOWER and MATLAB software”.

University for Development Studies (UDS), Tamale, Ghana, July 2007

Bachelor of Science in Applied Physics, GPA: 3.24 / 4.0

ST. John Bosco Teacher Training College, Navrongo, Ghana, June 2003

Teacher’s Certificate “A”

EXPERIENCE

Lecturer, The University of Energy and Natural Resources (July 2026-Present)

Department of Computer & Electrical Engineering

- Will be teaching courses, conducting exams, and grading papers for undergraduates and graduates engineering Majors.
- Will be doing research and supervising studies in magnetic materials and semiconductors.

Assembly Associate (July 2023-July 2024)

Randstad USA- Topre America Corporation, Cullman, Alabama.

- Manufactured/assembled all kind of vehicles parts using automated robots.
- Assembled all the parts through welding and toque
- Adhered to all policies and procedures including safety, attendance, behavior, and performance.
- Worked in an environment that requires personal protective equipment to be worn and follow all safety standards.
- Responsible for understanding and following operation standards.
- Responsible for understanding and following all standard work procedures.
- Responsible for identifying and reporting abnormal conditions of product and equipment.
- Participated in product improvement activities such as defect analysis and quality improving.
- Worked as a team and be assigned to different work tasks to complete production or other assignments required. Bend, twist, lift, stand, walk, reach, see, move, and hear as required by specific department.

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Machine checker (July 2022-May 2023)

Koch Farms/Food, Anniston, Alabama.

- Checked to ensure all company machines are working and functioning normal.
- Worked side by side with maintainers to repair broke down machines.
- Alert and work side by side with Maintainers on anomalies noted on machine parameters/factors for resolution.
- Worked in scale house to weigh loaded and unloaded trucks.
- Did live hang when needed.
- Did environmental checks daily and weekly.

Machinist (July 2021-May 2022)

Parker Hannifin Corporation-Instrumentation Products Division, Jacksonville, Alabama.

- Manufactured/Produced parts for all kind of machines.
- Sets up and runs multiple production machines.
- Performs machine operations where the materials, tooling, and sequence of operations have been pre-planned and established.
- Follows established manufacturing methods using standard production machines, materials, and tooling.
- Inspects parts for conformance to specifications using measuring instruments such as gages, calipers, micrometers and comparators.
- Actively implements lean initiatives by identifying and providing suggestions on areas for improvement. Effectively applies lean concepts and tools in work area.
- Routinely maintains equipment to ensure cleanliness, accuracy, and reliability specific to division requirements.

Production Engineer (January 2021-March 2021)

Honda Manufactory Alabama, Lincoln, Alabama.

- Manufactured vehicles and other HMA products.
- Adhered to all policies and procedures including safety, attendance, behavior, and performance.
- Worked in an environment that requires personal protective equipment to be worn and follow all safety standards.
- Responsible for understanding and following operation standards.
- Responsible for understanding and following all standard work procedures.
- Responsible for identifying and reporting abnormal conditions of product and equipment.
- Participated in product improvement activities such as defect analysis and quality improving.
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Intern Post Grad Engineering (Summer 2015)

HAMR Design Department, Western Digital Fremont, LLC, California.

- Simulated the understanding of layer detectability using forward solver (Matlab).
- Improved Attenuated Internal Reflection Station Calibration and Grain reproducibility and Repeatability Methods (Labview)
- Performed Au alloys and adhesion layers impact vs deposition conditions and thickness on plasmonic function.
- Performed the effect of pre-sputter etch or SiO₂ with respect to Au alloys or plasmonic function.

Graduate Research Assistant, The University of Alabama (Fall 2013-Fall 2020)

Department of Electrical and Computer Engineering.

- Performed FORC measurements and FORC+ simulations on perpendicular and in-plane magnetic tunnel junctions as well as pattern media.
- Characterized and/or analyzed perpendicular magnetic tunnel junction stacks using XRD, AFM, MFM, TEM, and magnetometry (AGM).
- Packaged Impedance modeling and Validation using COMSOL Multiphysics code: Wide Band-Gap Module Optimization.
- Simulated FePt granular films for micromagnetic applications using AlaMag software.
- Simulated permalloy (NiFe) films for micromagnetic applications using OOMMF software.
- Gained experience in UA Microfabrication Facility.
- Helped to perform TEM on CNT's for through-via applications.
- Performed Cu electroplating on through vias.

Graduate Teaching Assistant, The University of Alabama (Fall 2013-Fall 2019)

Department of Electrical & Computer Engineering and Department of Physics & Astronomy

- Taught undergraduate General Physics and calculus Lab for both non-engineering and engineering Majors (Department of Physics & Astronomy)
- GTA for a variety of undergraduate electrical engineering courses (Department of Electrical & Computer Engineering).

Teaching Assistant (Spring 2011-Spring 2013)

Department of Electrical Engineering, Tuskegee University.

- Taught undergraduate Linear Network and Circuits Labs as well as provided tutorials for Electromagnetism, Signals and System, graded lab reports, homework.

SKILLS

JMP, Origin, Minitab, MATLAB, PSPICE, Ion milling, Alternating Gradient Magnetometry (AGM), 4-Point Probe, Dektak Profilometer, Stress Tester, Copper plating, E-Beam Deposition, XRD, SEM, TEM, AFM, Microsoft Windows, Excel, word, PowerPoint, Solidworks. Power Supplies, Oscilloscopes, Multimeters, AutoCAD, Simulink, PCB Layout.

RELEVANT COURSEWORK

Power Electronics, Electric Power systems, Optimization and Control Power Systems, Organic Electronic Materials and Devices, Spin Electronics, Magnetic Recording, Intro to Micro-Fabrication, Fundamentals of Solid-State Engineering, Semiconductor Device Fabrication, Quantum Mechanics, Sputtered Thin Film Basics Application, Linear network and circuits, Electronics, Signals and Systems, Transmission Electron Microscopy, Electromagnetism e.t.c.

PUBLICATIONS

- “HRTEM study of microstructure-coercivity relationship in perpendicular $\text{Co}_{25}\text{Pd}_{75}$ thin films”, Philomena Komninou, Ilias M. Oikonomou, Billy D. Clark, **Joseph B. Abugri**, Kristin E. Tippey, P. B. Visscher, and Subhadra Gupta, Journal of Magnetism and Magnetic Materials. **529**, 167816 (2021) <https://doi.org/10.1016/j.jmmm.2021.167816>.
- “MFM and first order reversal curve (FORC) study of switching mechanism in $\text{Co}_{25}\text{Pd}_{75}$ films”, **Joseph B. Abugri**, B.D. Clark, P. B. Visscher, Jie Gong, and Subhadra Gupta, J. Appl. Phys. **126**, 013901 (2019); <https://doi.org/10.1063/1.5095424>.
- “Structural and Magnetic Properties of CoPd Alloys for Non-Volatile Memory Application”, **Joseph B. Abugri**, Billy D. Clark, Sujana Budhathoki, Pieter B. Visscher, Adam Hauser, and Subhadra Gupta, Proc. of 2019 IEEE Workshop on Microelectronics and Electron Devices (WMED), Boise, Idaho, April 26, 2019 <https://doi.org/10.1109/WMED.2019.8714127>.
- “First Order Reversal Curves (FORC+) Analysis of Perpendicular Magnetic Tunnel Junctions”, **Joseph B. Abugri**, P. B. Visscher, Subhadra Gupta, P. J. Chen, and R. D. Shull, J. Appl. Phys. **124**, 043901 (2018); <https://doi.org/10.1063/1.5031786>.
- “Modeling Interface Exchange Coupling: Effect on Switching of Granular FePt Films”, **Joseph B. Abugri**, P. B. Visscher, Hao Su, and Subhadra Gupta, J. Appl. Phys. **118**, 043902 (2015); <http://dx.doi.org/10.1063/1.4927216>.
- “Particle Swarm Optimization for the Minimization of Power Losses in Distribution Networks” **Joseph B. Abugri** and Marc Karam, The International Conference on Information Technology (ICITNG) [CD version], April 2015, <https://doi.org/10.1109/ITNG.2015.18>.

SELECTED PRESENTATIONS

- “Structural and Magnetic Properties of CoPd Alloys for Non-Volatile Memory Application”, Joseph B. Abugri, Pieter B. Visscher, and Subhadra Gupta, Proc. of 2019 IEEE Workshop on Microelectronics and Electron Devices (WMED), Boise, Idaho, April 26, 2019.
- “First Order Reversal Curves (FORC+) analysis of Perpendicular Magnetic tunnel Junctions”, Joseph B. Abugri, P. B. Visscher, Subhadra Gupta, and R. D. Shull, MINT Seminar, The University of Alabama, Tuscaloosa, Alabama, U.S.A. March 2018.
- “Perpendicular magnetic anisotropy in $\text{Co}_x\text{Pd}_{1-x}$ alloys”, **J. Abugri**, B. Clark, P. Visscher, and S. Gupta, Magnetism and Magnetic Materials (62nd MMM) Conference, oral presentation, Pittsburgh, PA, November 2017.