



Mebratu A. Gebeyehu

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Gender: Male **Date of birth:** 05/02/1995 **Place of birth:** Deb re Tabor, Ethiopia

Nationality: Ethiopian

ABOUT ME

Motivated researcher with an MSc in Electromechanical Engineering, seeking a PhD opportunity focused on sustainable building systems and the integration of renewable energy at building and district scales. Passionate about developing innovative, data-driven solutions to enable net-zero energy communities through advanced modeling, simulation, and interdisciplinary collaboration.

EDUCATION AND TRAIN-

ING

[01/11/2020 – 14/03/2023] **Master's Degree in Electromechanical Engineering**

Bahir Dar Institute of Technology, Bahir Dar University www.bdu.edu.et

City: Bahir Dar | **Country:** Ethiopia | | **Level in EQF:**

EQF level 7 [01/10/2013 – 07/07/2018] **Bachelor Degree in mechanical**

Engineering

Debre Tabor University www.dtu.edu.et

City: Debre Tabor | **Country:** Ethiopia | | **Level in EQF:** EQF level 6

PUBLICATIONS

[2024] **Innovative automation in injera production: design and performance of a relay-based control system**

Write here the description...This work focused on the design and development of an automated system for the production of injera, a traditional Ethiopian flatbread. The key contributions included the integration of robotic system, sensor and control algorithms for batter pouring, polishing, opening and closing the injera, as well as temperature monitoring and quality control. The system enabled a fully automated injera-making process from batter preparation to the final product. The system is mechatronics system for food robot.

Authors: Mebratu Assefa. Gebeyehu and Getnet Ayele Kebede | **Journal Name:** Journal of Engineering | **Publisher:** Wiley

[2025] **Comparative optimization of wire-cut EDM parameter for enhancing surface finish and machining time on stainless steel: a machine learning, genetic algorithms, teaching-learning-based optimization, and multi-objective Jaya approach**

The study focuses on optimizing wire electric discharge machining (WEDM) parameters to enhance surface finish (Ra) and reduce machining time (Mt) for stainless steel. The performance of three algorithms, including the genetic algorithm (GA), teaching–learning-based optimization (TLBO), and multi-objective Jaya (MO-Jaya) algorithms, was compared to identify the most efficient parameter tuning methods. The experimental array was designed using a Taguchi L9 matrix, utilizing controlled parameters including pulse-off time (Toff), peak current (Ip), pulse-on time (Ton), and wire feed rate (WFR). The experimental results were validated by artificial neural network modeling and found a 1.97% error and a mean squared error of 0.113.

Authors: Yitayal Belew Siyoum, Fikir Gashaw Kindie, Mebratu Assefa Gebeyehu, Sewale Enyew Chanie, Teshager Awoke Yeshiwas & Yilkal Azene Zelalem | **Publisher:** Springer Nature Link

WORK EXPERIENCE

[01/01/2025 – Current]

Lecturer in Electromechanical Engineering

Bahir Dar Institute of Technology, Bahir Dar University

City: Bahir Dar | **Country:** Ethiopia

Teach courses in Electromechanical Engineering, including mechatronics and Control system. Supervise undergraduate student projects.

Mechanical engineering

Woldia University

City: Woldia | **Country:** Ethiopia

Teach courses in Electromechanical and Mechanical Engineering, including mechatronics and fluid power system.

[25/03/2019 – 31/01/2025]

Assistant Lecturer in the Department of Mechanical Engineering

Woldia University

City: Woldia | **Country:** Ethiopia

Teach courses in Automotive and Mechanical Engineering including Control Systems, Engineering Dynamics, Engineering thermodynamics and automotive maintenance.

[19/07/2018 – 24/03/2019]

Mechanical Engineer (Agricultural Mechanization)

Amhara National Regional Bureau of Agriculture

City: Bahir Dar | **Country:** Ethiopia

Worked as a mechanical engineer focusing on agricultural mechanization. Developed and implemented mechanized agricultural solutions to enhance productivity. Collaborated with farmers and agricultural experts to integrate new technologies into traditional farming practices.

SKILLS

basic knowledge of Computer-Aided design (CAD), SolidWorks | Microsoft Office MATLAB/Simulink | Python Language - Basic knowledge | FEM calculation model and stress analysis: ANSYS (Workbench/Fluent) |Fluent and CFD (Computational Fluid Dynamics | Arduino applications basic level

VOLUNTEERING

[30/06/2013 – 07/07/2018]

Mechanical Engineering Club Debre tabor University, Debre tabor, Ethiopia

Assisted and organized junior students in the workshop focusing on safety and security. Provided demonstrations for workshop visitors.

LANGUAGE SKILLS

Mother tongue(s): Amharic

Other language(s):

English

LISTENING B2 READING C2 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

Reference

1. Dr. D.K.Nageswara Rao: B.Tech., M.E., Ph.D. (IIT Bombay)
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2. **Teshome Mulatie Bogale, Ph.D.**
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