

Getachew Ambaye

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Education & Training

- 2022–Present **PhD. (Industrial & Manufacturing Eng.)**[*Ready to defend*], Wichita State University (WSU), Wichita, USA
- 2021–2022 **Higher Diploma Program**, Bahir Dar Institution Technology (BiT), Bahir Dar, Ethiopia
- 2017–2020 **MSc. (Mechanical Design Eng.)**, Jimma Institution Technology (JiT), Jimma, Ethiopia
- 2012–2016 **BSc. (Mechanical Eng.)**, Jimma Institution Technology (JiT), Jimma, Ethiopia

Work/Teaching Experience

- 2022–Present **Direct Graduate Teaching Assistance (GTA) and GRA**, WSU, Wichita, KS, USA
- IME 222, Engineering Graphics (3 Semesters, (Summer 2023, Fall 2023, Spring 2024))
 - IME 222L, Engineering Graphics Lab (3DX & CATIA V5) (for 2 semesters, (Spring 2023, Fall 2024))
 - IME 425, Kinematics and Dynamics Design (as GTA), (1 Semester, (Fall 2022))
- 2024–Present **Engineering Professor**, Hesston College, Hesston, KS, USA
- ENGR 422, Design of Machines (1 Semester, (Fall 2024))
 - ENGR 477, Senior Design Capstone Project I (1 Semester, (Fall 2024))
 - ENGR 372, Mechatronic System Design
 - ENGR 371, Fundamentals of Mechatronics
 - ENGR 478, Senior Design Capstone Project II
- 2021–2022 **Gust Lecturer/Trainer**, Ethio Engineering Group (EEG), Addis Ababa, Ethiopia
- Product Design and Development: Module 1
 - Stress Analysis and Product Modelling: Module 2
- 2020–2022 **Lecturer**, Bahir Dar Institute of Technology (BiT), Bahir Dar, Ethiopia
- Material Handling Equipment Design (3 Semester)
 - Strength of Materials I (1 Semester)
 - Strength of Materials II (1 Semester)
 - Auto CAD (2 Semester)
 - Engineering Drawing (1 Semester)
- 2016–2020 **Assistant Lecturer - Lecturer**, Jimma Institute of Technology (JiT), Jimma, Ethiopia
- Mechanism of Machinery (1 semester)

- Design of Machine Elements (1 Semester)
- Maintenance of Machinery (1 Semester)
- Material Handling Equipment (1 Semester)
- Strength of Materials II (2 Semester)
- Auto CAD (2 Semester)
- Dynamics (1 Semester)

Publications

In Preparation

- Predicting the Working Space of a Numerically Analyzed Pneumatic Soft Actuator using Deep Learning
- Detecting Misalignments of Drilled Holes using Machine Vision, Submitted and presented to EAI ICAST 2023 - 11th EAI International Conference on Advancements of Science and Technology (ICAST), Springer, November 24-26, 2023 Bahir Dar, Ethiopia

Peer Reviewed

1. **Ambaye, Getachew**, Enkhsaikhan Boldsaikhan, and Krishna Krishnan. 2024. "Soft Robot Design, Manufacturing, and Operation Challenges: A Review" *Journal of Manufacturing and Materials Processing* 8, no. 2: 79. <https://doi.org/10.3390/jmmp8020079>
2. **Ambaye, Getachew**, Enkhsaikhan Boldsaikhan, and Krishna Krishnan. "Robot arm damage detection using vibration data and deep learning." *Neural Computing and Applications* 36, no. 4 (2024): 1727-1739.
3. **Ambaye, Getachew**, Krishnan, K. and Boldsaikhan, E., 2023, October. Detection of Small Screws Using Machine Learning. In *2023 International Conference on Information and Communication Technology for Development for Africa (ICT4DA)* (pp. 13-18). IEEE.
4. **Ambaye, G.A.**, Lemu, H.G. and Tolcha, M.A., 2022. Contact temperature analysis of the classical Geneva mechanism through numerical methods. *Materials Today: Proceedings*, 57, pp.545-552.
5. **Ambaye, G.A.** and Lemu, H.G., 2021, October. Numerical Stress Analysis and Fatigue Life Prediction of the Classical External Geneva Mechanism. In *International Workshop of Advanced Manufacturing and Automation* (pp. 176-186). Singapore: Springer Singapore.
6. **Ambaye, Getachew**, 2021. The performance of gear with backlash: A review. *Journal of Applied Mechanical Engineering*, 10(9), p.389.
7. **Ambaye, Getachew**, Numerical comparative modal analysis of connecting rod between fixed crankpin and fixed piston pin, the 8th International Conference on Innovation in Science and Technology, July 23–25, 2021 in Stockholm, Sweden.
8. **Ambaye, G.A.**, 2021. Determination of Important Contact Parameters for Spur Gear Design. *TechHub Journal*, 1(1), pp.28-38.
9. **Ambaye, G.A.** and Lemu, H.G., 2020, October. Effect of backlash on transmission error and time varying mesh stiffness. In *International Workshop of Advanced Manufacturing and Automation* (pp. 18-28). Singapore: Springer Singapore.
10. **Ambaye, G.A.** and Lemu, G. Hirpa, 2020, Numerical study of the effect of backlash on flash temperature of spur gear, *International Review of Mechanical Engineering (IREME)* 14, no. 11 (2020).

11. **Ambaye, G.A.** and Lemu, H.G., 2021. Dynamic analysis of spur gear with backlash using ADAMS. Materials Today: Proceedings, 38, pp.2959-2967.
12. **Ambaye, G.A.**, 2020, Short Descriptions of Measurements and Instrumentation. Int J Eng Res Technol, 9 (12).
13. **Ambaye G.A.**, 2020, Time and frequency domain analysis of signals: a review. Int J Eng Res Technol 9:271–276

Projects & Community Works

- Design and development of a CAM profile analyzer at Hesston College, 2024
- Natural and Forced Frequency Analysis for 3-Axis Milling Machine to Improve Stiffness, presented at Advanced Manufacturing Processes in WSU, 2023 (short term).
- Potato Processing Plant Facility Planning and Design for BiT, 2022
- Technology Recycling, on Change the World UC Challenge project, 2021
- Micro-dairy equipment Design for the Amhara Dairy Platform, 2021
- Design of HDPE & PVC pipe puller machine for Amhara Pipe Factory, 2020
- ExiST Project: X-ray Characterization and Modeling the Effect of Photovoltaic Material Degradation on Energy Conversion, 2020
- DTTP project: Building a small bridge for Ginjo Gudru kebele, 2019

Peer Review Activities

- Neural computing & applications
- Australian Journal of Mechanical Engineering
- Mechanical, Electric, and Industrial Engineering (MEIE2024)

Conferences Presentation and Participation

- 2024 COExperience and the 2024 MBSE Cyber Systems Symposium, Volunteer and Dr. David M. Aber Scholarship participant. May 13-16, 2024. Dallas, TX, USA
- EAI ICAST 2023 - 11th EAI International Conference on Advancements of Science and Technology, November 24-26, 2023, Ethiopia
- 2023 International Conference on Information and Communication Technology for Development in Africa (ICT4DA), was held on October 26-28, 2023, Ethiopia
- IWAMA 2021, 11th International Workshop on Advanced Manufacturing and Automation Henan polytechnics, Zhengzhou, October 11-12, 2021, China
- 8th International Conference on Innovation in Science and Technology, July 23-25, 2021 in Stockholm, Sweden
- International Conference and Exposition on Mechanical, Material and Manufacturing Technology, ICE3MT2020, India
- IWAMA 2020, 10th International Workshop on Advanced Manufacturing and Automation, Lingnan Normal University, Zhanjiang, China (Virtual conference)

Computer Software Skills

Modeling	Auto-CAD, Autodesk Inventor, CATIA V5, SOLID-WORKS, 3DX, GearTrax	
FEA	3DX, ABAQUS, ANSYS, Fe-Safe	Coding MATLAB, PYTHON
Dynamics	MSC ADAMS	Control SIEMENS PLC, (TIA)
Robotics¹	ABB Robot, UR Robot	Robotics² ABB Robot Studio, RoboDK
Hydraulic³	FluidSIM	Graphics CorelDraw, Adobe

Hardware skills

- Micro-controller and different sensors integration
- Arc Welding
- Girding
- Siemens PLC
- Drilling, Boring, GD&T, and Meteorology
- Maintenance of Car, and home appliances

Organisational/managerial skills

- Executive secretary for Mechanical Design Chair Council, Faculty of Mechanical and Industrial Engineering, Bahir Dar Institute of Technology, Bahir Dar University (2021-2022).
- Coordinator of Mechanical Design Chair for ABET Accreditation (Bahird Dar Institute of Technology (2021-2022)
- Executive secretary to developed Strategic Plan for Faculty of Mechanical and Industrial Engineering, Bahir Dar Institute of Technology, Bahir Dar University (2021-2022).
- Industry (Amhara Pipe Factory, APF)-linkage community service coordinator (2020)
- Preparing a teaching module of “Teaching Technical Drawing” for Grade 11 and 12 teachers (2020).
- Course Coordinator for design stream in Jimma University (2019-2020)
- Coordinating and working as a primary investigator on different projects

Selected Courses Completed at Wichita State University

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| ○ Robotics and Control | ○ Computer Integrated Manufacturing |
| ○ Applied Quantum Computations | ○ Robot Programming & Applications |
| ○ Machine Learning Essentials & Applications | ○ Statistical Methods for Engineers |
| ○ Advanced Industrial Robotics | ○ Advanced Cyber-Physical System(Observer) |

Awards

- Best Paper Award in EAI ICAST 2023: Detecting Misalignments of Drilled Holes using Machine Vision

Membership

- European Alliance for Innovation (EAI), Since 2023
- International Association of Engineers(IAENG), Since 2023

¹Robot manipulation using teaching pendent

²Robot control using Programming Software

³Hydraulic and Pneumatics System Simulator