

Habte T LIKASSA, PhD

Curriculum Vitae

College of Health Solutions
Arizona State University, Phoenix, AZ, USA
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Current Position

July 1, 2025 – **Assistant Research Scientist (Research and Teaching Positions)**, College of Health Solutions, Arizona State University, USA
Present

Research Focus Areas

- **RPCA-Based Methods for Medical Image Processing**
 - Developing robust biostatistical methods for high-dimensional medical image data
 - Statistical methods for personalized medicine and diagnostics
 - Predictive modeling to manage diseases such as diabetes, Alzheimer's disease, and cancer through neuroimaging
 - Tensor RPCA for neuroimaging data
 - Advanced robust methods, including low-rank and sparse component analysis, optimization, and machine learning algorithms to detect Alzheimer's disease, cancer, cataract, and diabetes
- **Spatial and Spatio-Temporal Data Analysis**
 - Development of spatial and spatio-temporal models to capture spatial dependence in infectious disease data
- **Public Health Statistical Methodology Applications**
 - Data-driven approaches for precision nutrition and individualized health outcomes
 - Developing novel and innovative AI-driven research, supported by modern robust statistical methods, to analyze health and health-related data
 - Method development for harmonizing tracer data
 - Methods that integrate Bayesian approaches and multiple imputation to handle missing data, develop robust techniques resilient to disruptive effects, and ensure robustness through simulations
- **Survival Data Analysis**
 - Time-to-event data analysis using Cox proportional hazards models, accelerated failure time (AFT) models, and shared frailty models

Guest Editor

2025 **Guest Editor**, *International Journal of Infectious Disease Research*

Education

- 2019 **Ph.D. in Statistics**, *National Taiwan University of Science and Technology*, Taiwan, Republic of China
- 2011 **M.Sc. in Statistics**, *Addis Ababa University*, Ethiopia
- 2008 **B.Sc. in Statistics**, *University of Gondar*, Ethiopia
- 2013 **Diploma certificate and teaching license to teach at a higher public university, issued by the Ministry of Education (MoE), and Debre Birhan University**, Ethiopia

Appointments (2009–2025)

- February 12, 2025 – June 30, 2025 **Assistant Research Scientist (Research Focus)**, *College of Health Solutions, Arizona State University*, USA
- 2024–2025 **Postdoc**, *College of Health Solutions, Arizona State University*, Phoenix, USA
○ Supervisor: Prof. Ding Geng Chen
- 2020–2023 **Assistant Professor**, *Department of Statistics, Addis Ababa University*, Ethiopia
- 2019–2020 **Assistant Professor**, *Department of Statistics, Ambo University*, Ethiopia
- 2014–2016 **Lecturer and Chair the Department of Statistics**, *Ambo University*, Ethiopia
- 2009–2014 **Graduate Assistant and Full Lecturer**, *Debre Birhan University*, Ethiopia

Leadership Experience

- Executive Committee Training Coordinator, *Ethiopian Statistical Association*, Ethiopia
- Chair Department of Statistics, *Addis Ababa University*, Ethiopia
- Vice Dean Research and Technology Transfer, *Ambo University*, Ethiopia
- Chair Research Ethics and Policy Guidelines, *Ambo University*, Ethiopia
- Consultant Ministry of Planning and Development, Ethiopia

Senior Research and Data Analyst Consultant

- Responsibilities Worked as Senior Statistical Analyst/Statistician in Ethiopia, providing:
- Delivered Training on research ethics, policy, and guidelines
 - Delivered Training on Statistical methods training for scientific research
 - Delivered Training on Advanced statistical modeling for postgraduate students
 - Data management and analysis using various statistical software:
 - LaTeX
 - SPSS
 - SAS
 - Stata
 - R
 - GIS
 - Matlab
 - Technical advisor for Statistical Software and methods at the Ministry of Planning and Development of Ethiopia, contracted by GTZ
 - Senior researcher in collaboration with the Ethiopian Economic Association and the Independent Council of Economic Advisors sponsored by Bill Gates.

Current Projects: Submitted Grant Project Proposals

- Enhancing Degraded Retinal Fundus Images and Predicting Diabetes Using RPCA with Log Weighted Nuclear ($L_{\log,*}$), $L_{2,1}$ norms, and Patch-Based CLAHE (2025 Arizona Alzheimer's Consortium (AAC) & State of Arizona DHS Pilot Grant)
- A Novel Robust Principal Component Analysis (RPCA) Method for Detecting and Predicting Alzheimer's Disease (AD) Using Color Retinal Fundus Photographs and Brain Imaging (2025 ADRC AAC Developmental Grant)
- Bayesian Robust Principal Component Analysis (BRPCA) with Deep Learning Framework to Enhance Low-Quality Retinal Color Fundus and Brain Images Associated with Alzheimer's Disease (AI Data Initiative Project)

Previous Projects

Statistical Modeling for Economic Impact Analysis

- **Title:** The Impact of COVID-19 on the Ethiopian Economy
- **Role:** Principal Investigator
- **Budget Awarded:** \$6,960 USD
- **Description:** Led a comprehensive study analyzing the economic effects of COVID-19 in Ethiopia, focusing on the healthcare, agriculture, and trade sectors. Provided data-driven policy recommendations.

WHO Post-Measles Campaign Coverage Survey (Ethiopian Statistical Association)

- **Role:** Regional Coordinator, Logistics, and Steering Committee Member
- **Budget Involved:** \$139,200 USD

Erasmus+ Capacity Building Project

- **Role:** Secretary and Research Member
- **Project:** Collaborative Erasmus+ Project on Capacity Building in Higher Education in Statistics

- **Involvement:** A partnership involving eight Ethiopian universities, coordinated by KU Leuven (Belgium) and Addis Ababa University (Ethiopia).
- **Budget Awarded:** \$304,500 USD

Application of Statistical Methods in STEM Attitudes Study

- **Role:** Research Member
- **Project:** Development of an ordinal logistic regression algorithm with regularization parameters to identify key factors influencing female students' attitudes toward STEM.
- **Institutions Involved:** Adama Science and Technology University (ASTU), Addis Ababa Science and Technology University (AASTU), and Addis Ababa University Technology Institute.
- **Budget Awarded:** \$2,407 USD

Application of Statistical Methods for Healthcare Workers' Challenges

- **Role:** Principal Researcher
- **Project:** An ordinal logistic regression model to identify the major challenges faced by healthcare workers in Kellem Wollega.
- **Collaboration:** Dambi Dollo University and Ambo University
- **Budget Awarded:** \$2,778 USD

Mini Projects

- **Role:** Principal Investigator
- **Description:** Conducted and successfully completed multiple mini-projects in the health and higher education sectors, all of which were submitted to public universities.

Data Analysis Training Services

- Data Management and Analysis using R for Academic Staff at Adama Science and Technology University, Ethiopia (2022)
- GIS Training for Oromia Science and Technology Employees (4 days, 2023)
- Stata Training for Academic Staff at Werabe University, Ethiopia
- Stata Training for Academic Staff at Madda Walabu University, Ethiopia
- Stata Training for Employees at MoPD, Ethiopia
- SPSS Training for Employees at MoPD, Ethiopia
- GIS Training for Employees at MoPD, Ethiopia
- Latex Training for Employees at MoPD, Ethiopia
- GIS and LaTeX Training for Land Use Employees (both federal and regional) in Adama City, Ethiopia.

Teaching Experience

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| Undergraduate | ○ Biostatistics |
| Level | ○ Introduction to statistics and probability |
| | ○ Operational research |
| | ○ Design of experiment |
| | ○ Statistical theory of distributions |
| | ○ Regression methods |

- Graduate Level
- Biostatistics
 - Advanced multivariate methods
 - Fundamental Biostatistics
 - Bayesian Biostatistics
 - Econometrics
 - Quantitative research methods
 - Spatial statistics
 - Advanced biometry
 - Statistical Decision Theory

Guest Lecturer

- Graduate Level
- Advanced Multivariate methods at Haromaya University, Ethiopia
 - Fundamental Biostatistics at Haromaya University, Ethiopia
 - Bayesian Biostatistics at Haromaya University, Ethiopia
 - Econometrics Lunera International College, Addis Ababa, Ethiopia
 - Spatial statistics at Ambo University, Ethiopia
 - Advanced biometry at Bule Hora University, Ethiopia
 - Advanced statistical theory of distribution at Jimma University, Ethiopia
 - Design of experiments at Wollega University, Ethiopia

Mentorship and Advising of Master's Students

- Habte Tadesse Likassa, Ding Geng Chen, Tedros Nigusse, (2023): Estimating time to recovery and determining the risk factors: Evidence from Ethiopia. My role: Main Supervisor
- Daniel Mulgeta, Butte Gotu, Shibru Temesgen, Merga Belina, Habte Tadesse Likassa, and Dejene Tsegaye (2022): Statistical Analysis of Spatial Distribution of Ambient Air Pollution in Addis Ababa, Ethiopia. Journal Stochastic Environmental Research and Risk Assessment My role: Main Supervisor (Published).
- Meskerem Sema and Habte Tadesse (2024): GARCH Modeling of Inflation Volatility in Ethiopia — What Do the Data Show? My role: Main Supervisor

Journal Reviewer Assignments

- Chief Associate Editor, Journal of the Ethiopian Statistical Association (JESA)
- Reviewer, International Journal of Simulation, Modeling and Computing
- Reviewer, IEEE Access
- Reviewer, PLOS ONE
- Reviewer, SINET
- Reviewer, Applied Statistics
- Reviewer, Computational Economics

Manuscripts Under Review

- Habte Tadesse LIKASSA, Ding-Geng Chen: RPCA with TWNNM and AHE: A novel method for enhancing low-quality retinal images. [Revision resubmitted to the Journal of Statistics and Data](#)

Science in Imaging, Journal of American Statistical Association.

- Habte Tadesse LIKASSA and Ding-Geng Chen: ST-GAM: A Novel Tensor-Product Spatiotemporal Generalized Additive Model for Complex Nonlinear Dependencies [submitted to Journal of Communication Statistics: Theory and Applications](#).
- Habte Tadesse LIKASSA and Ding-Geng Chen: A Modified Robust PCA Method for the Joint Optimization of Retinal Image Enhancement and Improved Diabetes Classification [submitted to Journal of Statistical in Biosciences](#).
- Habte Tadesse LIKASSA and Ding-Geng Chen: A Robust Copula-Based DCC-GARCH Model via ADMM for Scalable Multivariate Volatility Estimation [submitted to Journal of Financial Econometrics](#).

Research Publications

1. Habte Tadesse Likassa, Ding-Geng Chen, Saralees Nadarajah, Meskerem Sema, Jenny K. Chen, Shibru Temesgen & Butte Gotu: A Multivariate GARCH Model with Time-Varying Correlations: What Do Inflation Data Show in Ethiopia?, Computational Economics, Vol 64, 2025
2. Habte Tadesse LIKASSA and Ding Geng Chen (2025): RPCA with Log-Schatten Norm and Adaptive Histogram Equalization for Medical Imaging: [International Journal of Statistics in Medical Research, Volume 14, 2025](#).
3. Habte Tadesse Likassa, Ding-Geng Chen (2024): Robust Principal Component Analysis for Retinal Image Enhancement, [Journal of Biostatistics Modeling and Public Health Applications, Springer](#).
4. Habte Tadesse Likassa, Ding-Geng Chen, Dayu Sun (2024): A Novel RPCA Method Using Log-Weighted Nuclear Norms and $L_{2,1}$ Norms Combined with Contrast-Limited Adaptive Histogram Equalization (CLAHE). [International Journal of Statistics in Medical Research, Springer](#).
5. Tafesse Ashine, Habte T. Likassa, Ding-Geng Chen (2024): RPCA with TWNNM and AHE: Estimating Time-to-Death and Determining Risk Predictors for Heart Failure Patients: Bayesian AFT Shared Frailty Models Using the INLA Method. [Journal of Stat in MDPI](#).
6. Daniel Mulgeta, Butte Gotu, Shibru Temesgen, Merga Belina, Habte Tadesse Likassa, Dejene Tsegaye (2024): Statistical Analysis of Spatial Distribution of Ambient Air Pollution in Addis Ababa, Ethiopia. [Journal of Stochastic Environmental Research and Risk Assessment](#).
7. Habte Tadesse Likassa, Ding-Geng Chen, Kewei Chen, Yalin Wang, Zhui Wenhi (2024): Robust PCA with Log-Weighted and $L_{2,1}$ Norms: A Novel Method for Low-Quality Retinal Image Enhancement. [Journal of Imaging, 10\(7\), 151](#).
8. Hailemichael Kebede, Zelalem Demissie, Habte Tadesse, Addis Eshetu (2024): Comparison and Evaluation of Spatial Interpolation Techniques: The Case of Ground-Based Gravity and Elevation Datasets of the Central Main Ethiopian Rift. [Heylon Elsevier](#).
9. Habte Tadesse Likassa (2023): Modelling Conflict Dynamics: Evidence from the Horn of Africa Using the ACLED Dataset. [Applied Spatial Analysis and Policy, Springer](#).

10. Butte Gotu, Habte Tadesse Likassa (2023): Assessing COVID-19 Effects on Inflation, Unemployment, and GDP in Africa. *COVID, Journal of MDPI*, 3(7), 956-974.
11. Habte Tadesse Likassa, Peidong Liang, Chentao Zhang (2022): Robust Regression Method for Outliers and Sparse Noise Detection via Affine Transformation in Head Pose Estimation and Image Reconstruction. *Journal of Mathematical Engineering Problems*.
12. Habte Tadesse Likassa, Xian Wen (2022): New Robust Regularized Shrinkage Regression for High-Dimensional Image Alignment and Recovery. *International Journal of Mathematics and Mathematical Sciences*, Hindawi.
13. Habte Tadesse Likassa, Wen Hsien Fang (2018): Robust Image Recovery via Affine Transformation and $L_{2,1}$ Norm. *Journal of IEEE Access*, Impact Factor 4.098.
14. Habte Tadesse Likassa, Peidong Liang, Chentao Zhang, Jielong Guo (2021): New Robust PCA for Outlier Detection and Sparse Noise in High-Dimensional Images. *International Journal of Mathematics and Mathematical Sciences*.
15. Habte Tadesse Likassa, Wen Hsien Fang (2018): Robust Image Alignment via Subspace Recovery Techniques. *Proceedings of the VII International Conference on Network*.
16. Habte Tadesse Likassa, Chentao Zhang, Peidong Liang, Jielong Guo (2021): Robust Part-Based Model with Affine Transformation for Facial Landmark Localization in Big Data. *Journal of Modeling and Simulation in Engineering*.
17. Habte Tadesse Likassa (2019): The Impacts of Covariates on the Spatial Distribution of COVID-19. *EJMO*, 4(1), 96-101.
18. Habte Tadesse Likassa, Xuan Tang, Gizachew Gobeboa, Wen Xian (2020): Predictive Models on COVID-19: What Africans Should Do. *Journal of Infectious Disease Modeling*.
19. Zhang, Chentao and Likassa, Habte Tadesse and Liang, Peidong and Guo, Jielong (2021): New Robust Part-Based Model with Affine Transformations for Facial Landmark Localization and Detection in Big Data. *Journal of Modelling and Simulation in Engineering*, 1, Wiley Online Library.
20. Gotu, Butte and Tadesse, Habte (2023): Modelling conflict dynamics: Evidence from africa: What do the data show via spatiotemporal global acled dataset? *Journal of COVID, 2023, MDPI*.
21. Tadesse, Habte (2023): Assessing COVID-19 Effects on Inflation, Unemployment, and GDP in Africa: What Do the Data Show via GIS and Spatial Statistics? *Applied Spatial Analysis and Policy*, 16(4), 1541–1559, 2023, Springer.
22. Woldeyohannes, Birhanu and Yohannes, Zemene and Likassa, Habte T and Mekebo, Gizachew G and Wake, Senahara K and Sisay, Assefa L and Gondol, Ketema B and Argaw, Abebe and Diriba, Gezahagn and Irana, Tariku (2023): Count regression models analysis of factors affecting antenatal care utilization in Ethiopia *Annals of Medicine and Surgery*, 85(10), 4882–4886, 2023, LWW.

Conference Talks / Presentation

1. Delivered a [Spring Series presentation on "How to..."](#) at the College of Health Solutions, Arizona State University, USA, April 15, 2025.
2. Delivered a [44th Texas Statisticians Conference March 27 to 30, 2025](#).
3. Delivered a [Blitz talk ASU Digital Health Summit, Feb 14, 2025](#).
4. Delivered a presentation in the form of progress report in our research group in the College of Health Solutions, Arizona State University, USA.
5. Presented at the International Statistical Conference, University of Manchester, UK (Online), December 18, 2024.
6. Delivered a presentation at Addis Ababa University, Ethiopia, November 21, 2024.
7. Presented at the 2024 Arizona Alzheimer's Consortium (AAC), Arizona, USA.
8. Received certificates for Best Presenter at multiple international conferences.
9. Awarded Best Presenter at an international conference in Taiwan, Republic of China.
10. Presented at NTUST, Taiwan, Republic of China.
11. Delivered presentations at several Ethiopian universities, including
 - Addis Ababa University
 - Arba Minch University
 - Dire Dawa University
 - Haromaya University
 - Debre Birhan University
 - Aksum University (twice)
 - Asosa University
 - Madda Walabu University
 - Wollega University
 - Hawassa University

Membership and Editorial Positions

1. Guest Editor: International Journal of Statistics in Medical Research.
2. Guest Editor: Journal of Ethiopian Statistical Association.
3. Member, American Statistical Association.
4. Member, Ethiopian Statistical Association.
5. Member, Ethiopian Computational Data Science Association.
6. Member, Ethiopian Biometry Society.

Software Skills

1. R: Advanced
2. SPSS: Advanced
3. GIS: Advanced

4. STATA: Advanced
5. SAS: Advanced
6. MATLAB: Advanced
7. Excel: Advanced

Language Proficiency

1. English

References

1. Ding Din Chen, Executive Director and Professor of Biostatistics, College of Health Solutions, Arizona State University, USA, ding-geng.chen@asu.edu
2. Kewei Chen, Research Professor, College of Health Solutions, Arizona State University, USA, kewei.chen@asu.edu
3. Dr. Oana M. Dumitrascu, Associate Professor, Neurologist, Mayo Clinic, Arizona, dumitrascu.oana@mayo.edu
4. Saralees Nadarajah, Professor of Statistics, University of Manchester, UK, saralees.nadarajah@manchester.ac.uk
5. Butte Gotu, PhD, Associate Professor of Statistics, Addis Ababa University, Ethiopia, buttegotu@gmail.com
6. Yalin Wang, Professor, Arizona State University, USA, ylwang@asu.edu