



Habte Tadesse Likassa

Curriculum Vitae

*Postdoctoral Research Fellow
Department of Biostatistics
College of Health Solutions
Arizona State University, USA*

Current Position

2024 **Postdoctoral Research Scholar**, *College of Health Solutions, Arizona State University, USA*

Supervisor: Ding Geng Chen, *Executive Director and Professor of Biostatistics*

Current Research Interests

- Advanced robust methods for medical image analysis, incorporating low-rank sparse component analysis, optimization techniques, and machine learning to detect Alzheimer's disease, cancer, cataract and diabetes.
- Developing novel and innovative AI-driven research, supported by modern robust statistical methods, to analyze health and health-related data.
- Tensor RPCA for neuroimaging data
- Development of spatial and spatio-temporal models to well capture spatial dependence in infectious disease studies and health data.
- Predictive modeling to manage diseases such as diabetes, Alzheimer's disease, and cancer through neuroimaging.
- Methods that integrate bayesian approaches and multiple imputation to handle missing data, develop robust techniques resilient to disruptive effects, and ensure robustness through simulations.
- Time-to-event analysis.
- Statistical analysis for mental health studies.

Guest Editor

2024 **Guest Editor**, *International Journal of Statistics in Medical Research, USA*

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Education

- 2019 **Ph.D. in Statistics**, *National Taiwan University of Science and Technology*, Taiwan
2011 **M.Sc. in Statistics**, *Addis Ababa University*, Ethiopia
2008 **B.Sc. in Statistics**, *University of Gondar*, Ethiopia

Appointments (2009–2023)

- 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 Training Coordinator, Ethiopian Statistical Association, Ethiopia
Committee
Chair Department of Statistics, Addis Ababa University, Ethiopia
Vice Dean Research and Technology Transfer, Ambo University
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.

Submitted Grant Project Proposals

1. 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).

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2. Bayesian Robust Principal Component Analysis (BRPCA) with Deep Learning Framework to Enhance Low-Quality Retinal Color Fundus and Brain Images associated with Alzheimer's Diseases (AI Data Initiative Project).

Data Analysis Training Services

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

Teaching Experience

- Undergraduate Level
- Introduction to statistics and probability
 - Operational research
 - design of experiment
 - Statistical theory of distributions
 - Regression methods

- Graduate Level
- 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

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1. 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 (Under Review).
2. 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).
3. Meskerem Sema and Habte Tadesse (2024): GARCH Modeling of Inflation Volatility in Ethiopia — What Do the Data Show? My role: Main Supervisor (Under Review in Journal Computational Economics).

Journal Reviewer Assignments

1. Chief Editor, Journal of the Ethiopian Statistical Association (JESA)
2. Reviewer, International Journal of Simulation, Modeling and Computing
3. Reviewer, IEEE Access
4. Reviewer, PLOS ONE
5. Reviewer, SINET

Manuscripts Under Review

1. Habte Tadesse LIKASSA, Ding-Geng Chen: RPCA with TWNNM and AHE: A novel method for enhancing low-quality retinal images. Submitted to the Journal of Statistics and Data Science in Imaging.
2. Habte Tadesse LIKASSA, Saralees Nadarajah, Meskerem Sema, Jenny K. Chen, Shibru Temesgen, Butte Gotu, Ding-Geng Chen: GARCH Modeling of Inflation Volatility in Ethiopia: What Do the Data Show? Submitted to Journal of Computational Economics Journal

Research Publications

1. Habte Tadesse Likassa, Ding-Geng Chen (2024): Robust Principal Component Analysis for Retinal Image Enhancement, Journal of Biostatistics Modeling and Public Health Applications, *Springer*.
2. 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*.
3. 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*.

4. 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*.
6. 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.
7. 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. *Elsevier*.
8. Habte Tadesse Likassa (2023): Modelling Conflict Dynamics: Evidence from the Horn of Africa Using the ACLED Dataset. *Applied Spatial Analysis and Policy*, Springer.
9. 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.
10. 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*.
11. 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.
12. 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.
13. 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*.
14. Habte Tadesse Likassa, Wen Hsien Fang (2018): Robust Image Alignment via Subspace Recovery Techniques. *Proceedings of the VII International Conference on Network*.
15. Habte Tadesse Likassa, Chentao Zhang, Peidong Liang, Jielong Guo (2021): Robust Part-Based Model with Affine Transformation for Facial Landmark Localization in Big Data. *Modeling and Simulation in Engineering*.
16. Habte Tadesse Likassa (2019): The Impacts of Covariates on the Spatial Distribution of COVID-19. *EJMO*, 4(1), 96-101.
17. Habte Tadesse Likassa, Xuan Tang, Gizachew Gobeboa, Wen Xian (2020): Predictive Models on COVID-19: What Africans Should Do. *Journal of Infectious Disease Modeling*.
18. 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.

19. 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.
20. 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.
21. 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 presentation in the Department of Biostatistics, Arizona State University, USA.
2. Presented at the International Statistical Conference, University of Manchester, UK (Online), December 18, 2024.
3. Delivered a presentation at Addis Ababa University, Ethiopia, November 21, 2024.
4. Presented at the 2024 Arizona Alzheimer's Consortium (AAC), Arizona, USA.
5. Received certificates for Best Presenter at multiple international conferences.
6. Awarded Best Presenter at an international conference in Taiwan, Republic of China.
7. Presented at NTUST, Taiwan, Republic of China.
8. 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.
1. Guest Editor: Journal of Ethiopian Statistical Association.
2. Member, American Statistical Association.
3. Member, Ethiopian Statistical Association.
4. Member, Ethiopian Computational Data Science Association.
5. Member, Ethiopian Biometry Society.

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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
2. Afaan Oromoo
3. Amharic

References

1. Ding Din Chen, Executive Director and Professor of Biostatistics, Arizona State University, USA, ding-geng.chen@asu.edu
2. Kewei Chen, Research Professor, Arizona State University, USA, kewei.chen@asu.edu
5. Dr. Oana M. Dumitrascu, Associate Professor, Neurologist, Mayo Clinic, Arizona, dumitrascu.oana@mayo.edu
3. Saralees Nadarajah, Professor of Statistics, University of Manchester, UK, saralees.nadarajah@manchester.ac.uk
4. 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