

C U R R I C U L U M V I T A E

NAME and CURRENT ADDRESS:

Gebeyehu Belay Gebremeskel (Dr. of Eng.) Associate Professor
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Affiliation: Bahir Dar University, Institute of Technology: Computing Faculty



Citizenship: Ethiopian
Sex: Male
Marital Status: Married

EDUCATION and QUALIFICATIONS:

February 2014—July 2016, Postdoctoral Researcher and teaching staff

Chongqing University, at College of Automation, at Power and Intelligent System Control Lab, Chongqing, China,

Major Research Focus: Data Mining, Big Data Analytics and Intelligent Agent Technologies towards Intelligent System Control and Fault Diagnosis: Algorithm development and Implementation

September 2009--June 2013: Ph.D. (Doctor of Engineering) Chongqing University, College of Computer Science and Software Engineering, Chongqing, China,

Dissertation title: *The Paradigm of Architecture and Optimization of Integrating for Data Mining Algorithms and Multi-Agent Systems with Business Intelligence*

Major research work: *Data Mining/Machine Learning, Business Intelligence and Agent Technologies: Integration Approaches*, **Under the supervision** of Professor Zhongshi He

September 1999-January 2001: M. Sc. in Advanced Information Technology, London South Bank University, London, England (United Kingdom)

Major research work: System Dynamics Modeling and Decision Science, **Under the supervision** of Professor Ddembe Williams

September 1986-July 1990: B. Sc. in Alemaya University, Dire Dawa, Ethiopia Under the supervision of Dr. Birhanu Gebremedin

RESEARCH AND TEACHING EXPERIENCE:

Research:

- **Machine Learning:** Artificial intelligence, neural networking, genetic algorithms, support vector machine, inductive logic programming,
- **Data Mining:** Pattern mining, outlier or fault detections, pattern recognitions, GIS, image, text, web mining, inductive database, data warehousing, intelligent data cloud system
- **Big Data Analytics:** Predictions, performance optimization, efficiency and precisions
- **Intelligent System/ Agents Technology:** Agent learning algorithms, agent-based mining, intelligent systems, multi-agent systems
- **Business Intelligence:** Business processing management, modeling, business processing engineering, balanced scorecard
- **Algorithms:** Computational intelligence, genetic algorithms, evolutionary programming algorithms,

- **Decision Science:** Stella, system thinking, simulation modeling, office technology, object-oriented programming
- **Applications and software improvements,** and others in the field of Computer Science and Engineering

Teaching Experience: Bahir Dar University, Chongqing University (China), Blue Nile College, and Alfa University College

- **Major courses include:**
 - **Postgraduate Courses:** Machine Learning, Data Mining, Big Data Analytics, Cloud Computing, Advanced Human-Computer Interaction, Semantic Web Technology, and Ontology, Information Storage and Retrieval Management Distributed Database Systems, Distributed Computing, Research Design and Methodology, Security, Business Intelligence,
 - **Undergraduate (Previous experience):** Computer Architecture, Introduction to Computer Science, Programming (Java, C++), Office Technology, Database Management Systems, Artificial Intelligence, Agent and Agent Systems, Object-Oriented Programming, Algorithms, Pattern Recognition, Decision Science, computer applications, and Internet technology, security, and others

STUDENT ADVISING

- In Bahir Dar Institute of Technology advising Masters and Ph.D. Students
- From another university: University of Gondar, Jimma University, Hawasa University, Wollo University,

PUBLICATION AND RESEARCH WORK:

Gebeyehu Belay Gebremeskel (2022), A Critical Analysis of the Multi-Focus Images Fusion Using Discrete Wavelet Transform and Computer Vision, Soft Computing, Data Analysis, and Machine Learning, <https://doi.org/10.1007/s00500-022-06998-w>

Muluken Birara, **Gebeyehu Belay Gebremeskel (2022)** Augmenting Machine Learning for Amharic Speech Recognition: A paradigm of patient's Lips Motion Detection Journal of Multimedia and Application, <https://doi.org/10.1007/s11042-022-12399-w>, pp. 1-21,

Gebeyehu Belay Gebremeskel Leveraging Big Data to optimize Intelligent Transportation Systems for the Internet of Vehicles Data Structure and Analytics (**Conditionally accepted paper**)

Gebeyehu Belay Gebremeskel, Birhanu Hailu and Belete Biazen (----), The Elements of Big Data: A Data Mining based Characterization and Paradigm to support evidence-based Knowledge Sharing, IGI Global, Big Data and Knowledge Sharing in Virtual Organizations (**Accepted**)

Gebeyehu Belay Gebremeskel, Birhanu Hailu and Belete Biazen (-----), Edge Machine Learning Enhancing Internet of Things Data Analysis for Powering Intelligent Applications, IGI Global, Computing and Computational Intelligence Paradigms for the IoT, (**Accepted**)

Muluken Birara, **Gebeyehu Belay Gebremeskel** A Survey of automatic lip-reading techniques and their application to biometric identification (**under review: 2nd stage**)

Betlehem Zewdu, **Gebeyehu Belay Gebremeskel** Developing a Knowledge Base System for Workmen's Compensation Insurance Fraud Detection (**Under review**)

Gebeyehu Belay Gebremeskel Using Machine Learning Intelligent Information Retrieval and Data Distributions: In the case of Agriculture Science and Technology Data (Under review)

Ahmed Kebede, Gebeyehu Belay Gebremeskel: Applying LSTM model in Forecasting Tourist Arrivals in Ethiopia (**Under review**)

Gebeyehu Belay Gebremeskel, Agent-based Data Mining Algorithms for Intelligent Systems Fault Diagnosis: Sensor Performances Optimizations, Elsevier, Measurement, (**Under review**)

- Gebeyehu Belay Gebremeskel**, Mikiyas Gulema, Belete Mersha (----), A Data Mining Approach to Sentiment Analysis for Ethiopian Universities' graduate's Entrepreneurship Conceptualization, (**ongoing research**),
- Birhanu Hailu Belay, Tewodros Habtegebrial, Marcus Liwicki, **Gebeyehu Belay**, Didier Stricker, (2021), A Blended Attention-CTC Network Architecture for Amharic Text-image Recognition, Conference: The 10th International Conference on Pattern Recognition Applications and Methods(ICPRAM-2021)
- Betlehem Zewdu, **Gebeyehu Belay Gebremeskel**, Demystifying Predictive Analytics with Data Mining to Optimize Fraud Detection in the Insurance Industry, Springer, International Conference on Advances of Science and Technology, ICAST 2020: Advances of Science and Technology pp 432-442,
- Birhanu Belay, Tewodros Habtegebrial, **Gebeyehu Belay** and Didier Stricker, (2020) Using Automatic Features for Text-image Classification in Amharic Documents, In Proceedings of the 9th International Conference on Pattern Recognition Applications and Methods (ICPRAM 2020), DOI: 10.5220/0008940704400445, ISBN: 978-989-758-397-1m, pages 440-445,
- Birhanu Belay, Tewodros Habtegebrial, Million Meshesha, Marcus Liwicki, **Gebeyehu Belay**, Didier Stricker (2020), Amharic OCR: An End-to-End Learning, Appl. Sci. 10, 1117; doi:10.3390/app10031117, pp. 1-13,
- Gebeyehu Belay Gebremeskel**, Birhanu Hailu, Belete Biazen (2019), Architecture and optimization of data mining modeling for visualization of knowledge extraction: Patient safety care, Journal of King Saud University – Computer and Information Sciences 12 (6), pp. 1-12,
- Birhanu Belay, Tewodros Habtegebrial, Marcus Liwickiz, **Gebeyehu Belay** and Didier Stricker (2019), Amharic Text Image Recognition: Database, Algorithm, and Analysis, Conference: The 15th International Conference on Document Analysis and Recognition (ICDAR September 2019), PP. 1-6, Sydney, Australia,
- Gebeyehu Belay Gebremeskel**, Birhanu Hailu and Belete Biazen, (2019), Data mining misnomer nomenclature: myth or myopic based on its evolutionary and trend analysis, Int. J. Knowledge Engineering and Data Mining, Vol. 6, No. 3, pp: 234-272,
- Gebeyehu Belay Gebremeskel**, Yi Chai, Zhongshi He (2017) “The Integral of Spatial Data Mining in the Era of Big Data: Algorithms and Applications”, Handbook of Research on Advanced Data Mining Techniques and Applications for Business Intelligence, pp. 91 – 128,
- Gebeyehu Belay Gebremeskel**, Derbe Roba Dagne, and Yi Chai (2015) “Computational Forensics Techniques in the Era of Big Data: Cloud Security and Privacy”, Omics International, Forensics Research and Technology, doi.org/10.4172/2157-7145.C1.018, Vol. 6, Issue 6, pp. 112-121
- Gebeyehu Belay Gebremeskel**, Yi chai, Zhongshi He, and Dawit Haile (2015) “Combined Data Mining Techniques-Based Patient Data Outlier Detection for Healthcare Safety”, International Journal of Intelligent Computing and Cybernetics, Vol.9, Issue 1, pp. 135-159
- Gebeyehu Belay Gebremeskel**, Chai Yi, Chengliang Wang, and Zhongshi He (2015) "Critical Analysis of Smart Environment Sensor Data Behavior Pattern Based on Sequential Data Mining Techniques", Industrial Management & Data Systems, Vol. 115, Iss 6, pp. 1151 – 1178
- Gebeyehu Belay Gebremeskel**, Yi Chai, Zhongshi He (2015) “Demystifying Big Data in the Cloud: Enhancing Privacy and Security Using Data Mining techniques”, IGI Global, Geo-Intelligence, and Visualization Through Big Data, pp. 264-304,
- Gebeyehu Belay Gebremeskel**, Yi Chai, Shangbo Zhou, Xu Su (2015) “Image Data Mining Based on Wavelet Transform for Visualization of the Unique Characteristics of Image Data, Emerging Perspectives in Intelligent Pattern Recognition, and Image Processing”, IGI Global, pp. 1-40
- Gebeyehu Belay Gebremeskel**, Derbe Roba Dagne, and Yi Chai (2015) “The Integral of Big Data Technology in the Modern Education Systems”, Canadian International Journal of Science and Technology, Vol.2, issue 6, pp. 123-131,
- Gebeyehu Belay Gebremeskel**, Tsion Desalegn Hamada, and Yi Chai (2015) “An Augmenting of Data Mining Techniques and Algorithms for Academic Measurements and Evaluations”, International Journal of Interdisciplinary Studies in Business, Technology, and Education, ISSN 2333-5981, Vol.10, issue 3, pp. 231-240,
- Gebeyehu Belay Gebremeskel**, Yi Chai, and Zhimin Yang (2014) “The Paradigm of Big Data for Augmenting Internet of Vehicle into the Intelligent Cloud Computing Systems”, Elsevier, pp. 245-259

- Gebeyehu** Belay Gebremeskel, Ayenew Arega Kebede, Yi Chai (2014) “The Paradigm Role of ICT for Behavioral and Educational Psychology: The Case of Developing Countries”, *International Journal of Information and Education Technology*, pp. 117-129
- Gebeyehu** Belay Gebremeskel (2014) “The Paradigm Facts of ICT for Promoting Entrepreneurship and Innovative e-Business: A Lesson from China”, *The Second Regional ICT Development Symposium*, proceeding paper, pp. 15-28; Bahir Dar, Ethiopia
- Gebeyehu** Belay Gebremeskel, Zhongshi He, Huazheng Zhu (2013) “An Architecture of Intelligent Cloud Data Mining Platform for Optimization of Cloud-Based Business Intelligence”, *Journal of Convergence Information Technology*, Vol. 8, No. 4, pp. 304-312
- Gebeyehu** Belay Gebremeskel, Zhongshi He, Zhu Jia Yuanyuan (2013) “The Development of Invisible Data Mining Functionality for Discovering Interesting Knowledge: In the Case of Bioinformatics”, *Journal of Convergence Information Technology*, Vol. 8, No. 5, pp. 1246-1256
- Gebeyehu** Belay Gebremeskel, Zhongshi He, Huazheng Zhu (2012) “Data Mining Prospects in Mobile Social Networks”, (chapter in the book of Data Mining in Dynamic Social Networks and Fuzzy Systems), IGI, Global Disseminator of Knowledge, ISBN No. 978-1-4666-4213-3, USA
- Gebeyehu** Belay Gebremeskel, Zhongshi He, Dongsheng Zou (2012) “Software Process Management Assessment Towards CMM: A Systematic Approach to Optimize Internal Process Improvement”, *Springer-Verlag Berlin Heidelberg, Software Engineering and Knowledge Engineering, AISC 114*, pp. 499–505
- Gebeyehu** Belay Gebremeskel, Wan Chengliang, Zhongshi He (2012) “The Paradigm Integration of Computational Intelligence Performance in Cloud Computing Towards Data Security”, *IEEE Computer Society, 5th International Conference on Information and Computing Science*, DOI 10.1109/ICIC.2012.62, pp. 19 – 22, London, UK
- Gebeyehu** Belay Gebremeskel, Zhongshi He, Xuan Jing (2012) “Semantic Integrating for Intelligent Cloud Data Mining Platform and Cloud-Based Business Intelligence for Optimization of Mobile Social Networks”, (chapter in the book of Data Mining in Dynamic Social Networks and Fuzzy Systems), IGI, Global Disseminator of Knowledge, ISBN No. 978-1-4666-4213-3, USA
- Gebeyehu** Belay Gebremeskel (September 2006) “A Framework for Understanding the Role of GIS and ICT on Education System Requirement Engineering Process: In the case of Amhara Region”; Bahir Dar, Ethiopia (presented at “International Symposium on Geoinformation in Education and Local Action 2006”, September 25-26, 2006)
- Abay A. and **Gebeyehu** B.G., (2005) “Study of Strategic Plan of Environmental Information Systems in the Amhara Region”; Bahir Dar, Ethiopia
- Gebeyehu** B.G. (2005) “An Assessment and System Requirements for Environmental Information Network in the Amhara Region”; Bahir Dar, Ethiopia
- Eshete D. and **Gebeyehu** B.G. (2005) “An Evaluations of Agricultural Research Systems and Development in the Amhara Region”, Bahir Dar, Ethiopia
- Gebeyehu** B.G. (2004) “Information Communication Technology in the Amhara Region Towards Economic Development”; Bahir Dar, Ethiopia
- Gebeyehu** B.G., (2000) “An Investigation of System Dynamics Modeling Use for the Decision-Making Process”; *Journal of Operational Research*; London, UK

WORK EXPERIENCE:

September 2016 – present, Associate Professor and principal researcher, System Development Chair, Software Engineering Department Head,

Bahir Dar University, Institute of Technology: Computing faculty.

- Teaching and research as mentioned above “Teaching and Research area”
- Masters and Ph.D. students’ advisor: currently, I am co-advisor for two Ph.D. Students and principal advisor for fifteen Masters's Students.
- External and Internal Masters Students Examiner,

January 2014 – July 2016: Postdoctoral research fellow and teaching: Researcher and technical staff in Chongqing University at College of Automation

- Research on big data focusing on intelligent system control, fault diagnosis, and algorithms using various applications and technologies, via Data Mining, agents, and others. Most of the research output is published in the scientific pre-review and high standard journals, international conferences, and book chapters
- Assisting Professors to monitor and supervise Masters and Ph.D. in research design, methodology, and other technical matters
- Participating in the college in any technical matters

September 2013 – January 2014, Lecturer in the position of Ass Professor at Bahir Dar University, Institute of Technology: School of Computing and Electrical Engineering, Ethiopia

September 2007 – August 2009, Head of Planning and Information Technology Management Department and Network and System Administrator of the Amhara Region Agriculture Research Institute, Ethiopia

- Established, implemented, and administered the local area network of the institute by reviewing all the required IT equipment, including the server and network logs, each day to check abnormal indications; ensuring that e-mail, the internet, remote access, and all related services are functioning at optimum efficiency; minimizing network downtime; and assuring server data integrity and security
- I was responsible for providing technical support to staff and research center researchers on the various ICT services and systems of the institute that include communications (voice, video, and high-performance data/messaging networks), and development and management of different databases
- Conducted higher research activities in the area of information and systems within and outside the institute
- Prepared, designed, coordinated, and conducted training related to ICT and systems including computer software
- Other tasks are given by the institute director general

April 2001 – September 2007, Head of Planning and Information Technology Management Department, Bahir Dar at Amhara Regional Agricultural Research Institute (ARARI), Ethiopia

- Lead and coordinated department activities as of our terms of reference
- Planned and monitored the ARARI annual budget and prepared and submitted feedback reports to the respective bodies including the institute director general
- Prepared and reviewed project documents
- Established, implemented, and administered the local area network of ARARI by reviewing all the required IT equipment including the server and network logs each day to check abnormal indications; ensuring that e-mail, the internet, remote access, and all related services are functioning at optimum efficiency; minimizing network downtime; and assuring server data integrity and security
- I was responsible for providing technical support to staff and research center researchers on the various ICT services and systems of the institute that include communications (voice, video, and high-performance data/messaging networks), and development and management of different databases
- Conducting higher research activities in the area of “information and systems” within and outside the institute
- Prepared, designed, coordinated, and conducted training related to ICT and systems including computer software
- Other tasks: given by the institute director general

September 1997 – August 1999, Regional Development Advisor, Somali National Regional State, Jijiga, Ethiopia

- Advised and acted as technical assistant to the regional president, general secretary, sector heads, and bureau heads in project implementation
- Initiated and prioritized the setups of the region's socio-economic projects
- Guided and led the participation of projects, the annual plan, monitoring, and evaluations techniques,
- Annual budget preparation, resource allocation, and monitored financial and physical performance
- Co-ordinated the annual budget planning and monitored long-, medium-, and short-term training
- Policy innovations and development for monitoring the implementation of resources

September 1995 – August 1997, Economic Development Team Leader, Bureau of Planning and Economic Development in the Amhara National Regional State, Ethiopia

- Co-ordinated and led experts under the group
- Budget preparation, allocation, monitoring, and evaluation
- Participated in sector bureau's project performance and performance evaluations
- Produced, prepared, and submitted economic policy ideas to the bureau head
- Conducted socio-economic research in the education, agriculture, and water sectors
- Co-ordinated NGO budget allocation, implementation, and evaluations

September 1990 - January 1995, Economist, Upper Awash Agro-Industry, Merti Upper Awash, Ethiopia

- Project feasibility study: implemented, monitored and evaluated the enterprise
- Developed alternative scenarios to maximize enterprise production
- Data collection, analysis, documenting, and reporting
- Conducted research
- Prepared financial performance reports
- Established a marketing information gathering system and designed a customer database to obtain accurate market information

MEMBERSHIPS:

- Amhara Scholar Council: Board member and head of Urban development, Industry and Technology cluster,
- Ethiopian Information and Communication Technology Association, Ethiopia,
- Ethiopian Red Cross Association and Volunteer Service, Ethiopia

AWARDS:

- Bahir Dar University, Institute of Technology research award, January 2018,
- Chongqing University, postdoctoral research fellow award, February 2014
- Amhara Region ICT Agency, certificate and cash awards, February 2014
- Amhara Research Institute, project coordination and implementation gold medal and certificate October 2008
- Network and video conferencing national project development and implementation, Ethiopian Information Communication Technology Ministers money and certificate, March 2006
- United Nations Development Program, Master's degree sponsorship award; London, UK
- Somali Region Project innovation and higher officer advising, Ethiopian government national award, August 1999

COMPUTING SKILLS AND PROFILE:

Computing Skills:

- Application Software and tools: **C++, Java, VB, Matlab, WEKA, DataMiner, together (UML), Graphics, and others**
- Database Management Systems: **MySQL, PLSQL, Oracle, SPSS, SAS, DataMiner, and others**
- Office packages, Photoshop, and others
- System software: Windows, Unix (basic experience)
- Graphics, design tools, software: GIS Arc View, AutoCAD, Stella, Decision Explorer, Web page design software (Dreamweaver, FrontPage PHP, HTML)
- Software projects, computer networking (CISCO), and maintenance

Advanced Work Profiles:

- Good experience in International and national level workshop organization
- Good skills and experience in computer training (basic knowledge of computer and computer science, and scientific paper writing)
- Experience working on project appraisal and planning, higher officer advising on project innovations, implementation, monitoring, and evaluation
- Adaptable and able to quickly establish rapport with others when working on different teams to achieve set goals
- Illustrate excellent research and writing skills (scientific papers), etc.

On-the-job Training:

- Advanced GIS and remote sensing
- Statistical software such as SPSS and SAS use
- Leadership management
- Research methodology
- CISCO networking: Enterprise, Configurations
- Web page designing: HTML, FrontPage, Dream Weaver, etc.
- A+ and maintenance
- Data Analysis and many other workshops

Journal Review

- Journal associate Editor: International Journal of Fog Computing, and
- Journal Reviewer: ACM-Transaction of Cyber-Physical Systems, Emerald: Journal of System and Information Technology, IJCAC, IJFC, and InterScience IJSTM.
- ACM transaction on Cyber-Physical Security
- Emerald Journal of System and Information Technology,
- Emerald International Journal of Intelligent Computing and Cybernetics,
- Journal of IEEE Access,
- IEEE Intelligent Transportation Systems Transactions,
- International Journal of Fog Computing,
- InterScience: International Journal of BlockChain,
- Indian Journal of Science and Technology
- International Journal of Soft computing,

International Conference participation

- ICAST (International Conference in Advanced Science and Technology): Conference organization track chair, Proceeding editor, conference paper reviewer, from 2018 to present,
- ICT4D International Conference paper review for 2018,

HOBBIES:

- Computing (besides technical and professional matter, doing something using a computer)
- Reading (professional, novels, and other genres)
- Sports (football, basketball, badminton, swimming, table tennis, running)
- Outdoor recreation (walking, shopping, traveling)

LANGUAGE SKILLS:

- Amharic: Native speaker
- English: Writing, reading, and listening skills; excellent
- Other Ethiopian local languages: (Tigrigna, Oromia, Somali); fair
- Chinese (Simplified): Speaking and listening comprehension; fair; reading and writing; poor

REFERENCES:

- Sisay Geremew (Ph.D.)
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- Chai Yi (Ph.D.)
Full professor at Chongqing University at the College of Automation, vice dean of the college, distinguished scientist in Rocket Launch and Power Engineering
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