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Personal Statement

Kommy is a Senior Research Staff Member and Master Inventor at IBM Research. He has more than 15 years of experience in information technology. His expertise spans broad concept-to-research-to-market experience acquired through numerous advanced technology research projects across systems, data and analytics ecosystems, artificial intelligence, supply chains, healthcare, climate change and related areas. Thanks to his interdisciplinary background, he has a successful record of accomplishments in both industry and academia. In his current position, Kommy is responsible for technical strategy and common architecture for building AI-driven tools and methodologies to enable seamless predictions of climate risks and extreme events across space and time and create technologies for risk and impact assessment to enable resilience and business continuity. Kommy holds more than 250 patents and applications (in the fields of software systems, BigData, AI, Blockchains, IoT, and Security) and is the author of over 90 peer-reviewed scientific publications as well as several articles in the media. He has received numerous awards such as an elected member of the [Young Scientist World Economic Forum \(2015\)](#), a Fellow of the [Next Einstein Forum \(2016\)](#), won the [Kifra Prize Award \(2020\)](#), and twice IBM Master Inventor (2017 - present).

Education

Ph.D. in Computer Science and Information Engineering University of Trento, Trento, Italy	03/2010
M.Sc in Computer Science and Engineering Indian Institute of Technology (IIT) at Bombay, Mumbai, India	07/2006
B.Sc. in Computer Science Addis Ababa University, Addis Ababa, Ethiopia	07/2003

Professional Experience

Future of Climate, Global Leader , IBM Research Worldwide responsible within IBM Research for scientific, technical, and common architecture for building tools and methodologies to enable seamless predictions of climate risks and extreme events across space and time and create technologies for risk and impact assessment to enable resilience and business continuity (such as, Food Systems, supply chains, asset / infrastructure management, financial services).	03/20 - Present
Chief Scientist & Architect , IBM Research Africa Labs Technical Advisor to VP, IBM Research - Africa & Emerging Market Solutions; Responsible for the scientific and technical directions and execution Core AI Science & Engineering Research and Impact Research (e.g., Digital Agriculture, Climate, Healthcare, Financial Services). Lead technical client engagements and drive innovation strategies for our partners and collaborators. Lead the integration of research tools, techniques, algorithms and software into commercial products as well as into opensource libraries.	11/18 - Present

STSM & Manager, Blockchain & AI , IBM Research Africa Senior Technical Staff Member (STSM) responsible for the technical and research directions for our Blockchain and AI solutions in Emerging Markets.	05/18 - Present
Scientist & Manager, Blockchain & AI Solutions , IBM Research Africa Lead the development of blockchain & analytics for our clients; contribute to the scientific body-of-knowledge through scientific publications and patents; manage a world class team consists of software engineers, data scientists, and researchers; responsible for their career progression.	06/15 - 04/18
Research Scientist, Lead Cognitive Education , IBM Research Africa Led the development and deployment of personalized education systems; published scientific articles on top conferences and journals; mentored and supervised scientists and research interns.	06/13 - 04/15
Researcher , School of Computing, Queen's University, Canada Worked as adjunct assistant professor, developed tools and techniques for the analysis and detection of malicious activities on the Web and Mobile; published scientific articles on top conferences and journals; supervised graduate theses and research interns.	08/12 - 07/15
Tenure Track Researcher , Fondazione Bruno Kessler, Trento, Italy Developed and evaluated security-safety critical systems (e.g., Electronic Voting Systems) and technologies for social good, supervised undergraduate and graduate students.	04/10 - 08/12
Adjunct Professor , University of Trento, Trento, Italy Taught graduate level specialized courses, supervised undergraduate and graduate theses.	09/10 - 01/12
Research Assistant , Fondazione Bruno Kessler, Trento, Italy Developed tools and techniques for security and safety analysis, assisted research activities as PhD student, published scientific articles on top conferences and journals.	11/06 - 10/09
Visiting Researcher , University of California, Santa Barbara, CA USA Developed tools and methodologies for specification and analysis of electronic voting systems, published scientific articles on top conferences and journals.	05/08 - 04/09

Sample Projects (that I have I(co-)led have been in the press and/or commercialized)

AI-enabled Climate Impact Modeling Framework (CIMF), a highly scalable Climate Risk and Impact Modeling framework , which leverages AI to understand the risks and hazards (floods, droughts, wildfires, etc.) to assets and business operations due to a changing climate. This framework is a unique system with enhanced AI and intelligent workflows to accelerate climate and sustainability model development on Hybrid Cloud (at scale that nobody else can do now). It integrates AI accelerators specifically for climate and sustainability applications, by deploying use-inspired AI methods to improve both impact model accuracy and uncertainty quantification. At the core of CIMF is also standardizing climate, weather, and sustainability models that are notoriously diverse and complex by consolidating, extending, and making these models accessible and easily interpretable to show where risks and impacts may occur. This allows co-creation using its analytics-ready data and pre-build models such as emission models, floods, wildfires, droughts, and extremes and a library of AI algorithms for better calibration, quantification, and predictions. CIMF is the driving technology for **IBM's Environmental Intelligent Suite (EIS)**, a suite of applications that enable enterprises to plan

for and respond to disruptive environmental events to ensure business continuity.

Climate-ware demand forecasting (Principal Investigator), a novel modeling framework that efficiently encodes seasonal climate predictions to provide robust and reliable time-series forecasting for supply chain functions. The encoding framework enables effective learning of latent representations— be it uncertain seasonal climate prediction or other time-series data via a modular neural network architecture.

Ag Wallet System (AWS) (Principal Investigator), the first-ever blockchain system that formalizes and establishes a digital trust among small-scale farming ecosystems (farmers, co-ops/agents, tractor owners/dealers, financial institutions, input suppliers, etc.) and enable decision supports while unlocking values for stakeholders of the value chains. AWS also uses data from diverse sources (survey, tractors, IoT devices, remote sensing, weather, etc.) accurately identify and digitize farm boundaries, estimate acreages, estimate yields, predict diseases, model weather disrupters, generate models for financial services, etc. (Ref: [The Economist](#))

TradeLens Platform (Co-Principal Investigator), the world’s largest and first-ever blockchain platform that empowers businesses and authorities along the supply chain with a single, secure source of shipping data, enabling more efficient global trade. (Ref: [Fortune](#))

Policy Making with AI (Principal Investigator), a decision platform for collaborative policy-making with AI, e.g., for malaria eradication. (Ref: [The Economist](#))

Digital Health Wallet (Co-Principal Investigator), a blockchain-enabled system that allows seamless clinical workflow orchestration and patient-mediated data exchange through consent management in a privacy-preserving manner.

Blockchain Document Store (Co-Principal Investigator), a platform that allows entities to securely store, share and govern documents while providing a source of validation to support mission-critical business processes where the lack of proper documentation can delay outcomes and potentially void the transaction. (Ref: [The Tech Revolutionist](#))

Cognitive Learning Companion (Principal Investigator), a suite of cognitive capabilities supporting and seamlessly connecting multiple modes of learning for learners and teachers (Ref: [Forbes](#))

School Information Hub (Principal Investigator), a platform for multimodal and longitudinal school data management powered by AI-driven decision support capabilities. (Ref: [Communications Africa](#))

Framework for Improving Legal Informatics (Co-Principal Investigator), a framework that facilitates the mission of legislatures by supporting the law-making and analysis activities, and the management of legal documents, as well as the optimization of Public Administration.

Sample Social Eminence

[Forbes, WildDucks](#): Exclusive interview on the work I led “Cognitive Systems To Help Shape The Future Of Education” Featured in IBM Episode Podcast series and detailed description featured in Forbes. 100+ media articles have appeared globally

[CNN, The Road to Invention](#): Great Big Story series by CNN where I featured discussing the road to invention to the wider public using my invention US 9,846,999 that solves one the most dangerous incidents for pedestrians in most part of the world. This was also featured by Engineering For Change. Video was posted on YouTube and viewed 193,888 times so far

[TV Show](#): I discussed the role of AI and Blockchain to solve grand challenges in emerging economies. It was broadcasted by Ethiopian Broadcasting Service (a popular Satellite TV channel its headquarters in Silver Springs, Maryland) and watched by several million fans in two parts also available on YouTube Part 1 and Part 2

[CIO, Trust in the Unknown: Blockchain could be the answer](#): As subject matter expert, I discussed how blockchain technology can benefit the financial industry for CIO readers, who are enterprise community of CIOs and senior technology decision-makers. This was featured in CIO (33.7K twitter followers) weekly Blockchain Column Online and Printed

[IBM, Solving Society's Problems Through Inventing](#): My thoughts on inclusion in the workplace and my career journey featured in [IBM Inclusion blog](#)

[The Economist, The digital future of agriculture in Africa](#): As subject matter expert, I discussed farm digital twin and IBM's Watson Decision Platform for Agriculture with Hello Tractor CEO

[CTA, Digital Agriculture](#) I discussed how data and AI transforming agriculture and also featured in CTA's INNOVATION AND IMPACT Dec 2019 - Feb 2020 Edition

Additional majority blogs/presses based on works I've (co-)led or involved available [here](#)

Honors and Awards

2021, IBM's Top performers of 2020

2021, IBM Corporate Technical Recognition Honor (Book)

2020, IBM Research Special Landmark Trophy Award.

2020: IBM High Value Patent Award for our [Advanced webpage content management](#) invention.

2020, The [Kifra Prize 2020](#) in **Technology** (with USD 50,000.00 cash award with Medal and Trophy).

2020, IBM Research 2020 Accomplishment Award for the contributions to the Research contributions to Digitization and Cloud Adoption in Agriculture.

2020, IBM Research's Master Inventor (~1% of IBM employees are selected as master inventors).

2020, Invention Achievement Awards from IBM (42th Plateau ~ 170 patent/applications).

2019, Outstanding Service Award for Leadership in Invention Development Team (IDT) at IBM.

2019, Invention Achievement Awards from IBM (36th Plateau ~ 144 patent applications).

2018, Outstanding Technical Achievement Award for the contributions to the [TradeLens](#) Platform.

2018, Outstanding Service Award for Leadership in Invention Development Team (IDT) at IBM.

2018, Eminence and Excellence Cash Award from IBM.

2017, Promoted to Senior Technical Staff Member of IBM Research.

2017, IBM Research's Master Inventor (~1% of IBM employees are selected as master inventors).

2017: IBM High Value Patent Award for our [Configuring classroom physical resources](#) invention.

03/2016, Elected the Next Einstein Fellow Award

08/2015, World Economic Forum, Young Scientists Honors of 2015.

2014, Outstanding Technical Achievement Award for the contributions to the Personalized Education.

10/2014, Experienced Level Award for Embrace challenge, Collaborate globally, Act with a systemic perspective, Build mutual trust, Influence through expertise, Continuously transform and Communicate for impact competencies. IBM Research.

11/2013, Manager's Choice Award for Technical Achievement. IBM Research.

06/2013, Travel Grant Award, Queen's University.

2010, Best Paper Award, International Conference on Digital Society, St. Maarten, Netherlands Antilles.

2010, Best Paper Award, International Conference on Technical and Legal Aspects of the e-Society, St. Maarten, Netherlands Antilles.

2010, Travel Grant, USENIX Security, Washington, DC USA.

2009, Travel Grant, USENIX Security, Montreal, Canada.

2008, Travel Grant, USENIX Security, San Jose, CA USA.

2008, ACM Travel Grant, Doctoral Symposium and ISSTA, Seattle, WA USA.

2006, PhD Graduate Scholarship, Fondazione Bruno Kessler, Trento, Italy.

2004, Master's Scholarship grant Ministry of Education, Addis Ababa, Ethiopia.

Skills Development: Mentorship and Supervision (Examples)

Mohamed Zaytar (PhD), Research Intern (IBM Research) (completed September 11, 2019), Title: *Optimal Time Window Recommender for Cultivation Services in Small-Scale Farming*.

Mattia Zeni (PhD), Research Intern (IBM Research) (completed September 11, 2015), Title: *Automatic Detection and Clustering of article's stories in Newspapers using Multimedia Information*.

Shelby Solomon Darnell (PhD), Research Intern (completed September 11, 2015), Title: *Automatic Detection, Validation and Counting of Pupils Using Low Quality Multimedia Data in Africa Classroom*.

Reagan Mbitiru (MSc.), Research Intern at *IBM Research* (completed September 15, 2015), Title: *Knowledge Graph Generation from Article stories using the IBM's Alchemy Technology*.

Agnes Nyambura (MSc.), Research Intern at *IBM Research* (completed September 15, 2015), Title: *Timeline Analysis of Article Stories from Dynamic Knowledge Graph*.

Jaye Clarkes-Nias (PhD), Research intern at *IBM Research* (completed September 11, 2014), Title: *Capturing Context/Sentiment from Digital Learning Environment*.

Josh Marston, (BSc.) Research intern (completed August 2013) at *Queen's University*, Title: *Evaluating and Securing Firefox for Android Browser Extensions*.

Dhyanesh Chaudhari (MSc), thesis defended July 2013 (*Queen's University*), Thesis Title: *A Component Ranking Framework for More Reliable Software*.

Francesco Cuomo (MSc), Research intern at *IBM Research* (completed October 15, 2013), Title: *Leveraging Raspberry Pi for Interactive Education*.

Hana Fahim Hashemi (MSc), *Queen's University*, thesis defended August 2014, Area: *TabsGuard: A Hybrid Approach to Detect and Prevent Tabnabbing Attacks*.

Amin Faiz Khademi (MSc), *Queen's University*, thesis defended September 2014, Thesis Title: *FP-Guard: Detection and Prevention of Browser Fingerprinting*.

Ali Fawzi Najm Al-Shammari (PhD), started in 2010, Area: *Electronic Voting Systems*.

Claudio Frigo (BSc), graduated in September 2010, Thesis Title: *Misconfiguration Vulnerability Analysis in Web Applications*.

Patents: USPTO **Granted & Apps** | **Google Patents**

1. Reducing distraction caused by user devices in group settings, US 9,756,552.
2. Smartphone safety system for pedestrians, US 9,846,999.
3. Cooperative download among low-end devices under resource constraint environment, US 9,961,139.
4. Cooperative download among low-end devices under resource constraint environment, US 10, 652, 324.
5. Personalized situation awareness using human emotion and incident properties, US, 10, 074, 368
6. Parking for Self-driving car, US 9,919,704.
7. An aerial drone companion device and A method of operating an aerial drone companion device, US 10,140,987.
8. Authentication based on configuration of interlocking bricks, US 10,226,714.
9. Modifying behaviour of autonomous vehicle based on advanced predicted behaviour analysis of nearby drivers, US 10,249,194.
10. Software bot conflict-resolution service agent, US 10,289,456.
11. Software bot conflict-resolution service agent, US 10,331,497.
12. Software bot conflict-resolution service agent, US 10691505.
13. Context-aware deterrent and response system for financial transaction device security, US 10311440.
14. System and method for creating and managing intelligent water points in resource constrained regions, US 10319051.
15. Personality sharing among drone swarm, US 10,324,466.
16. Blockchain Web Browser Interface, US 10,375.105
17. Detecting an illumination need, US 10,345,825.
18. Vehicle Transaction Validation, US 10,380,812.
19. Blockchain tracking of virtual universe traversal results, US 10,389,749.
20. System and Method for Automatic Detection and Clustering of article's stories in Newspapers using Multimedia Information, US 10,572,528.
21. Smartphone monopod with use restriction enforcement, US 10,415,742.
22. Amelioration of Traffic gridlock conditions, US 10,140,859.
23. Blockchain for program code credit and programmer contribution in a collective, US 10,438,170.
24. System and method for detecting anomalies in examinations, US 10,516,525.
25. Automated granting of access to WiFi Networks and Services for pre-paid devices, US 10, 505,944.
26. Automated granting of access to WiFi Networks and Services for pre-paid devices, US 10,505,945.
27. Contextual User Profile Photo Selection, US 10,572,121.
28. Drone CAPTCHA, US 10,534,362.
29. Ecosystem for intelligent injecting and ejecting of virtual "amazon dash" buttons for OS task bars, US 10,540,706.

30. System, method and computer program product for an air quality amelioration action, US 10,549,602.
31. Maintenance of a machine, US 10,569,872.
32. Maintenance of a machine, US 10,696,399.
33. Facilitating mitigation of dangerous activities, US 10,592,947
34. Facilitating mitigation of dangerous activities, US 10,614,494.
35. Separating two additive signal sources, US 10,601,454
36. Blockchain tracking of virtual universe traversal results, US 10,601,861
37. Location-based Augmented Reality Game Control, US 10,603,578.
38. Location-based Augmented Reality Game Control, US 10,603,579.
39. Unmanned Aerial Vehicle Data Management, US 10,611,474.
40. Automated management of undesired code use based on predicted valuation and risk analysis, US 10, 628,138.
41. Cognitive volume and speech frequency levels adjustment, US 10,652,655.
42. System and method for detecting anomalies in examinations, US 10,659,218.
43. Adaptive Event Management in Resource-constrained Environments, US 10681157.
44. Blockchain-enhanced mobile telecommunication device, US 115/448822.
45. Managing Vehicle to Vehicle Communication to Facilitate Operational Safety via Risk Assessment. US 10,696,299.
46. Facilitating Personalized Down-Time Activities, US 10,708,421.
47. Managing lifelong learner event via blockchain systems and methods, US 10, 713, 963.
48. Conversation Attendant and Assistant Platform, US 10,735,365.
49. Advanced context-based firewall for AI entities that learn, US 10,742,605.
50. Cognitive volume and speech frequency levels adjustment, US 10,743,104.
51. Automated digital content summarization on mobile devices, US 10,762,284.
52. System and method for creating and managing intelligent water points in resource constrained regions, US 10,762,584.
53. System and method for Context-driven displaying of Shortcuts and Command on Cognitive Touchpad, US 10,768,780.
54. Predicting crop productivity for resource constrained small-scale farm, US 10,772,269.
55. Smart speaker system with cognitive sound analysis and response, US 10,832,672.
56. Smart speaker system with cognitive sound analysis and response, US 10,832,673.
57. Smart speaker system with cognitive sound analysis and response, China ZL201910631643.9.
58. Personality sharing among drone swarm, US 10,831,197.
59. Blockchain for program code credit and programmer contribution in a collective, US 10,832,215.
60. Controlling computer executions based on terms and conditions and user device attributes, US 10,901,717.

61. Method and system for automatic real-time identification and presentation of analogies to clarify a concept, US 10,915,819.
62. Cognitive Hearing Aid, US 10, 916,245.
63. Separating two additive signal sources, US 10,903,863.
64. System and Method for Creating a Census Hub in Resource Constrained Regions, US 10,929,786.
65. Advanced dental health tracking system and method via blockchain, US 10,930,377.
66. Drone used for authentication and authorization for restricted access via an electronic lock, US 9,875,592.
67. Drone and Drone-based system for collecting and managing waste for improved sanitation, US 10,095,231.
68. Drone and Drone-based system for collecting and managing waste for improved sanitation, US 10,096,005.
69. Unmanned Aerial Vehicle-based System for Livestock parasite Amelioration, US 9,943,387.
70. Drone and drone-based system and methods for helping user assembly an object, US 9,958,866.
71. Drone and drone-based system and methods for helping user assembly an object, US 10,372,127.
72. Self-driving vehicle sensor fault remediation, US 9, 940, 761.
73. A sand leaning vehicle and a method of cleaning sand using the same, US 9,988,781.
74. Method and system for parental simulacrum for reduction of child separation anxiety, US 10,950,355.
75. Smart Contact Lens System with Cognitive Analysis and Aid. US 10,963,045.
76. Predictive code clearance by a cognitive computing system. US 16/154699.
77. Detection and management of disease outbreaks in livestock using health graph networks. US 10,993,417.
78. Blockchain tracking of virtual universe traversal results. US 10,999,317.
79. Enabling Attention by Leveraging a user-effective communication channel. US 11,005,790.
80. Social media control provisioning to trusted friends. US 11,010,437.
81. A Smartphone Based System for Reminding a Person that they have Forgotten to Return a Temporary/Visitor's Badge. US 11,004,325.
82. Contextual User Profile Photo Selection. US 11,016,640
83. Unmanned Aerial Vehicle-based system for creating foam splint, US App No. 15/222574.
84. Intelligent Illumination and Sound Control in an Internet of Things (IOT) Computing Environment. US 11,012,659.
85. Advanced context-based firewall for AI entities that learn, US 10,742,605.
86. Facilitating Micro-Task Performance During Down-time. US, 11,093,871.
87. Social Media/Network Enabled Digital Learning Environment with Atomic Refactoring. US, 94, 965,440.
88. Content Demotion. US 11,113,719.
89. Blockchain Web Browser Interface, US 11,102,232.

90. Crop grading via deep learning. US 11, 120, 552.
91. Filtering media data in an internet of things (IOT) computing environment. US 11, 146, 597.
92. Contextualized item reminder assistance. US 11, 144, 884.
93. System and method for reducing risks from emergency lights. US 11, 148, 588.
94. Detecting Vehicular Deviation from a specified path. US 11, 150, 099
95. Method and system for contextual textual ad insertion with textual content. US App No.: 16/510171.
96. Context-Based Resource Allocation with Extended User Concepts. US Appl. No.: 15/973675.
97. Generating personalized Table of Contents based on analysis of predicted internet search. US App No. 16/194264.
98. System and method for preventing selfie related risks. App. No.: 16/589782.
99. Interpreting reactions of other people for physically impaired during an emergency situation. US App No.: 16/424266.
100. Automated task management for users via blockchain. US Appl. No.: 16/019630.
101. Simplifying electronic communication for a user based on dynamically adjusted contact entries. US App No. 16/197492.
102. Emoji Modification. US App No. 16/150296.
103. Improved Impairing and Deterring of Online Profiling. US App No. 16/221520.
104. Dynamic and Adaptive Learning System Generator, US App No. 15/198014.
105. Autonomous mobile beehives, US App No. 15/285189.
106. Tracking Items used for providing medical services. US App No. 15/398272.
107. System and Method for Incident Aggregation and Validation using Human and Nonhuman Data Sources, US App No. 15/449,161.
108. System and Method of Acquiring road data, US App No. 15/440885.
109. System, method and computer program product for estimating, scheduling, and monitoring farm activity, US App No. 15/396922.
110. Drone hotel and system, method and computer program product for a drone hotel, US App No. 15/396927.
111. Myoelectric control of unmanned aerial vehicle by prosthetic limb, US App No. 15/399109.
112. Blockchain for Issue/Defect Tracking System, US App No. 15/582967.
113. Configuring Classroom Physical Resources, US App No. 15/486429.
114. A system and method for managing school systems on blockchain, US App No. 15/582858.
115. Point-Of-Sale System for Real-Time Risk Assessment, Instant Message-Based Collaborative Guarantorship, And Method for Using the Same, US App No. 15/61497.
116. Rating Data Management, US App No. 15/617593.
117. Cognitive diabetic regulator, US App No. 15/640,509.
118. Augmenting vending machines with personality and collaboration via chatbots. US App No. 15/709643.
119. Contextual Test Alteration. US App No. 15/805656.

120. Route accessibility for users of mobility assistive technology, US App No. 15/65136.
121. Generating selectable control items for a learner based on context and cohort. .US App No. 15/868561.
122. Generating selectable control items for a learner based on context and cohort. US App. No. 15/868547.
123. Cognitive Ride Scheduling. US 5/832944.
124. Enabling Dynamic Online and Offline Teacher Support Capabilities using various Affinity Measures. Appl. No.: 15/724,258.
125. Cognitive Baby Pacifier. Appl. No.: 15/706814.
126. Terms of Service Platform using Blockchain. US Appl. No.: 15/988062.
127. Smart speaker device with cognitive sound analysis and response. US App No. 16/034488.
128. Dynamic mid-air landing zone creation for drones to avoid ground congestion. US Appl. No.: 15/995413.
129. Smart Contact Lens System with Cognitive Analysis and Aid. Appl. No.: 15/962168.
130. Blockchain and Cryptocurrency for Real-Time Autonomous Vehicle Accident Management/Settlement. US Appl. No.: 15/997826.
131. Artificial Intelligence for Providing Enhance Microblog Message Insertion. US App No. 16/042474.
132. System and Method for controlling content and content sources according to situational context. US App No. 16/112083.
133. Maintaining Conversation Continuity. US App No. 16/132,023.
134. Content modification using dynamic geo-fence zones. US App No. 16/139,063.
135. Database Transaction Cultural Compliance. US App No. 16/157847.
136. Method and system for configuring a chatbot exercise machine. US App No. 16/160052.
137. Contextual Odor Recognition. US App No. 16/191931.
138. Sensor Risk Assessment Database. US App No. 16/183222.
139. Migration of a legacy system. US App No. 16/181620.
140. Enhanced user screening for sensitive service. US App No. 16/218434.
141. Intelligent Notification Mode Switching in User Equipment. US App No. 16/054741.
142. Advanced webpage content management. US Appl. No.: 16/004656.
143. Context enabled sender communication awareness system. US App Np.: 16/257583.
144. Parking continuity with unused duration between automated vehicles. US App No.:16/398968.
145. Contextual API CAPTCHA. US App No.:16/419368.
146. Device protection based on prediction and contextual analysis. US App No.: 16/431181.
147. Contextual Hashtag Generator. US App No.: 16/426516.
148. Communication Devices. US App No.: 16/431682.
149. Property Valuation using Crowdsourcing and Rewards. US App No.: 16/504472.
150. Predictive road/route congestion management. US App No.: 16/515957.

151. Buyback Provision Mechanism. US App No.: 16/424437.
152. Operations management based on predicted operations effectiveness. US App No.: 16/539162.
153. Predictive car wash services for a vehicle based on anticipated routes of travel. US App No.: 16/565933.
154. System and method for estimating farm cultivation quality. US App No.: 16/565457.
155. Providing live first aid response guidance using a machine learning based cognitive aid planner. US App No.: 16/569032.
156. System and method for detecting prescription abuse for controlled substances using a distributed ledger and machine learning model. App. No.: 16/592818.
157. Improved Parkinson's treatment adjustment and rehabilitation therapy based on analysis of adaptive serious games. US App. No.: 16/665445.
158. Cognitive decision platform for honey value chain. US App. No.: 16/665633.
159. System and Method Toward Goal Driven Matchmaking for Mobile Workers. US App. No.: 16/677158.
160. Dynamic Caregiver Support. US App. No.: 16/699088.
161. Predictive Virtual Reconstruction of Physical Environments. US App. No.: 16/699836.
162. System and method for media recommendation based on emotional trajectory. US App. No.: 16/699458.
163. Controlling Conference Call Dial-Ins and Holding Queues During Sensitive Discussions. US App. No.: 16/733532.
164. Advanced multi-verification of handwritten signatures. US App. No.: 16/749596.
165. System and method for Identifying Adversarial Attacks with advanced subset scanning. US App. No.: 62/965309.
166. Method and system for Preparing resources and content for a user for distraction-free work environment (autonomous time-boxing). US App. No.: 16/778839.
167. Managing trans-boundary water use using a distributed ledger and machine learning. US App. No.: 16/784685.
168. Dynamic Creation and Insertion of content. US App. No.: 16/797190.
169. Digital twin Manager. US App. No.: US App. No.: 16/926863.
170. Vigilant Cognitive Cursor based on Clipboard Buffer Contents. US App. No.: 16/856109.
171. AI-Assisted Detection and Prevention of Unwanted Noise Sounds for Sensitive Children with Noise Sensitivity. US App. No.: 16/884,278.
172. Group 'out-of-distribution' (OOD) Detection by Perturbation. US App. No.: 16/880147.
173. Machine Learning Models for Livestock value chain. US App. No.: 16/884746.
174. Methods and systems for automated data-level linkages across non-overlapped datasets. US App. No.: 16/924365.
175. A method and system for detecting learner engagement within a physical classroom using a non-invasive method. US App. No.: 16/925725
176. Augmenting blockchain with multi-factor authentication for users of non-internet based applications. US App. No.: 17/020753.

177. System and Method to Predict the Risk of Infection using Node Embedding over Heterogeneous Temporal Graphs. US App. No.: 17/009043.
178. Predicting tire imbalance and/or wheel misalignment. US App. No.: 17/021358.
179. Method and system for synchronizing a voice reply from AI voice assistance system to user's activity. US App. No.: 17/031544.
180. Reader assistance method and system for comprehension checks. US App. No.: 16/948852.
181. Dynamic Namespace Modification for Virtual Agents. US App. No.: 16/949729.
182. Optimization of supply chain operation. US App. No.: 17/083583.
183. Artificial content identification using subset scanning over generative model activations. US App. No.: 17/090116.
184. Dynamic virtual assistant speech modulation. US App. No.: 17/247414.
185. Pattern Discovery, prediction and Causal Effect Estimation in Treatment Discontinuation. US App. No.: 17/133285.
186. Tree fall management. US App. No.: 17/132063.
187. Automatic context aware composing and synchronizing of video and audio transcript. US App. No.: 17/149069
188. Contextual personal protective equipment. US App. 17/128456.
189. Electronic display systems. US App. 17/203722.
190. Conference call interruption interpreter. US App. No.: 17/329730.
191. Dynamic profiling of SCM for DRaaS and NAS. US App. No.: 17/305849.
192. A method and system to generate tropical cyclone winds and rainfall for impact assessments at any location. US App. No.: 17/341349.
193. Trend informed Demand forecasting. P202100626.
194. Carbon-aware code optimizer. US App. No.: 17/346388.
195. Spatio-temporal calendar generation. US App. No.: 17/203585.
196. A method and system for improved regionalized climate models using physics-informed neural networks in the latent space. US App. No.: 17/302077.
197. Carbon-aware test case generator system. US App. No.: 17/302576.
198. System and Method to Auto-discovering Reasoning Knowledge Graph in Supply Chains for Explaining the Impact of Climatic Variation and Disruptive Events. US App. No.:17/219272.
199. Method and system for automatic detection and correction of sound distortion. US App. No. 17/477592.
200. Simulate live video presentation in a recorded video US App. No. 17/472946
201. Obfuscating audio samples for health privacy contexts. US App. No.
202. Social Guidelines Adherence Monitor in Virtual Settings. US App. No. 17/493797

Referred Scientific Publications (DBLP | Google Scholar | IBM)

92. A Framework for Encoding Seasonal-scale Weather Predictions for Climate-aware Demand Forecasting. NeurIPS CCAI 2021 (submitted).
91. C. Cintas, S. Speakman, K. Weldemariam. Anomaly Detection in sequential data via pattern mining in the activation space of Recurrent Neural Network. In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2022). ICASSP 2022 (submitted).
90. C. Cintas, S. Speakman, V. Akinwande, G. Tadesse. K. Weldemariam. SubsetGAN: Pattern Detection in the Activation Space for Identifying Synthesized Content. Pattern Recognition, Elsevier 2021. (accepted).
89. Girmaw Abebe Tadesse, Hamza Javed, Yong Liu, Jin Liu, Jiyan Chen, Komminist Weldemariam, and Tingting Zhu. DeepMI: Deep Multi-lead ECG Fusion for Occurrence-time Prediction of Myocardial-Infarction. Journal of Artificial Intelligence In Medicine, Elsevier. 2021. (accepted)
88. A. Jain, D. Oliveira, A. Sharma, L. R. Varshney, C. Watson, K. Weldemariam, D. Wuebbles and B. Zadrozny. *Toward an AI-based Framework for Accelerated Discovery of Climate Impacts on Agriculture*. In the proceedings of AAAI 2021 Fall Symposium Series (Where AI meets Food Security: Intelligent Approaches for Climate-Aware Agriculture), 2021.
87. C. N. Twarakavi , J. Singh, K. Das, S. Godbole, K. Weldemariam (2021). *Big Data Analytics for Climate Resilient Supply Chains: Opportunities and Way Forward*. In: Studies in Big Data, Vol. 96, G.P.Obi Reddy et al. (Eds): Data Science in Agriculture and Natural Resource Management, 978-981-16-5846-4, Springer Nature, 2021.
86. C. Cintas, R. Raghavendra, V. Akinwande, A. Walcott, C. Wayua, K. Weldemariam. *Data-Driven Sequential Pattern Discovery in Global Health Studies*. In the Proceedings of the American Medical Informatics Association (AMIA) Annual Symposium 2021.
85. G. Tadesse, W. Ogallo, C. Cintas, S. Speakman, K. Varshney, A. Walcott, K. Weldemariam. Data-level Linkage of Multiple Surveys for Improved Understanding of Global Health Challenge. AMIA Annu Symp Proc. 2021 May 17;2021:92-101. PMID: 34457123; PMCID: PMC8378602.
84. C. Watson and K. Weldemariam. Investigating two super-resolution methods for downscaling precipitation: ESRGAN and CAR. In NeurIPS Workshop on Tackling Climate Change with Machine Learning, 2020.
83. M. Vukovic and K. Weldemariam, "Toward Agile and Resilient Manufacturing Using AI," Smart and Sustainable Manufacturing Systems 4. DOI: <https://doi.org/10.1520/SSMS20200068>.
82. A. Kinai, N. Bore, F. Otieno, K. Weldemariam. *Augmenting blockchain with multi-factor authentication for users of non-internet based applications*. In the Proceedings of the IEEE Blockchain/BTA. IEEE 2020.
81. William Ogallo, Skyler Speakman, Victor Akinwande, Kush R. Varshney, Aisha Walcott-Bryant, Charity Wayua, Komminist Weldemariam, Claire-Helene Mershon, Nosa Oroboton. *Identifying Factors Associated with Neonatal Mortality in Sub-Saharan Africa using Machine Learning*. In the Proceedings of the American Medical Informatics Association (AMIA) Annual Symposium 2020.
80. Oliver Bent, Sekou L. Remy, Aisha Walcott, Komminist Weldemariam. *A Platform for Disease Intervention Planning*. To appear In the Proceedings of the 8TH IEEE International Conference on Healthcare Informatics (ICHI 2020).
79. W. Ogallo, S. Speakman, V. Akinwande, K. Varshney, A. Bryant¹, C. Wayua, K. Weldemariam. *Inspection of Blackbox Models for Evaluating Vulnerability in Maternal, Newborn, and Child Health (MNCH)*. In the Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020). IJCAI 2020: 5282-5284.
78. C. Cintas, R. Raghavendra, V. Akinwande, A. Walcott, C. Wayua, K. Weldemariam. *Pattern Discovery and Causal Effect Estimation of Contraceptive Discontinuation*. In the Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020). IJCAI 2020: 5288-5290.

77. C. Cintas, S. Speakman, V. Akinwande, W. Ogallo, K. Weldemariam, E. McFowland. *Detecting Adversarial Attacks via Subset Scanning of Autoencoder Activations and Reconstruction Error*. In Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020). IJCAI 2020: 876-882
76. G. Tadesse, H. Javed, Y. Liu, K. Weldemariam, Tingting Zhu. *A spectral-longitudinal model for detection of heart attack from 12-lead ECG waveforms*. In Proceedings of the 42nd Annual International Conferences of the IEEE Engineering in Medicine and Biology Society (EMBC 2020), IEEE.
75. N. Bore, A. Kinai, J. Mutahi, P. Waweru, I. Wambugu, R. Bryant, K. Weldemariam. *Blockchain-enabled Small-scale Farm Digitization*. In Proceedings of the IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2020). IEEE, 2020.
74. S. Maina, R Bryant, W. Ogallo, R. Samoilescu, K. Varshney, K. Weldemariam. *Preservation of Anomalous Subgroups on Variational Autoencoder Transformed Data*. In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2020). ICASSP 2020: 3627-3631.
73. G. Tadesse, K. Weldemariam, H. Javed, Y. Liu, Tingting Zhu. *Discriminant Knowledge Extraction from Electrocardiograms for Automated Diagnosis of Myocardial Infarction*. In Proceedings of the Principle and Practice of Data and Knowledge Acquisition Workshop (PKAW2020), co-located with IJCAI 2020.
72. G. Tadesse, O. Bent, L. Marcenaro, K. Weldemariam, A. Cavallaro. *Privacy-aware human activity recognition from a wearable camera*. *IEEE Signal Process. Mag.* 37(3): 168-172 (2020)
71. Girmaw Abebe Tadesse, Skyler Speakman, Celia Cintas. *Cross-country Linkage of Disjoint Datasets to Address Global Health Challenges*. 5th International Workshop on Biomedical Informatics with Optimization and Machine Learning (BOOM) at IJCAI 2020
70. Girmaw Abebe Tadesse, Skyler Speakman, Celia Cintas. *Prediction of neonatal mortality in Sub-Saharan African countries using data-level linkage of multiple surveys*. Machine Learning for Global Health ICML 2020 Workshop.
69. R. Bryant, C. Cintas, I. Wambugu, A. Kinai, Abdigani Diriye and Komminist Weldemariam. *Evaluation of Bias in Sensitive Personal Information Used to Train Financial Models*. IEEE Global Conference on Signal and Information Processing (GlobalSIP), pp. 1–5. IEEE, 2019.
68. S. Osebe, C. M. Wachira, F. Matu, N. Bore, D. Kaguma, J. Mutahi, W. Ogallo, C. Cintas, S. L. Remy, A. Walcott, K. Weldemariam. *Enabling Care Continuity using a Digital Health Wallet*. In Proceedings of the Seventh IEEE International Conference on Healthcare Informatics (ICHI 2019), pp. 1–7. IEEE, 2019.
67. N. Bore, A. Kinai, J. Mutahi, D. Kaguma, F. Otieno, S. Remy, K. Weldemariam. *On Using Blockchain Based Workflows*. in Proceedings of the IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2019), pp. 112–116. IEEE, 2019.
66. N. Bore, K. Varshney, I. Serfaty, S. Remy, B. SRIVASTAVA, E. Pissadaki, M. Hind, O. Bent, K. Weldemariam. *Promoting Distributed Trust in Machine Learning and Computational Simulation via a Blockchain Network*. In Proceedings of the IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2019), pp. 311–319. IEEE, 2019.
65. S. Speakman, S. Sridharan, S. Remy, K. Weldemariam, Edward McFowland. *Subset Scanning Over Neural Network Activations*. CoRR. <http://arxiv.org/abs/1810.08676> ARXIV, 2018.
64. N. Bore, S. Karumba, S.S. Darnell, C. Wayua, K. Weldemariam. *Towards Blockchain-enabled School Information Hub*. In Proceedings of the International Conference on ICTD. Note paper. ACM, 2017.
63. A. Kinai, J. Mutahi, N. Bore, S. Karumba, S. Sridharan, A. Diriye, K. Weldemariam. *Deploying Large Scale School Census Hub: An experience report*, in Proceedings of the 39th International Conference on Software Engineering: Software Engineering in Society Track, pp. 47-56. ACM/IEEE, 2017.

62. J. Wamburu, D. Kaguma, A. Walcott-Bryant, M. Tatsubori, R. Brayant, K. Weldemariam. *Roaming Nairobi Roads: Instrumenting Roads Under Resource Constraint*, in Proceedings of the International Conference on Mobile Software Engineering and Systems, pp. 100-109. IEEE Press, 2017.
61. J. Mutahi, N. Bore, A. Kinai, A. Diriye, K. Weldemariam. *Studying Engagement and Performance with Learning Technology in an African Classroom*, in Proceedings of the Seventh International Learning Analytics & Knowledge Conference (LAK 2017), pp. 148-152. ACM, 2017.
60. M. Zeni and K. Weldemariam. "Extracting data from newspaper archival for social good services", *IBM Journal of Research and Development*, 2017.
59. O. Bent, P. Dey, K. Weldemariam, M. Mohania. "Modeling User Behavior Data in Systems of Engagement," *Future Generation Computer Systems*, Volume:68, Pages: 456-464. Elsevier, 2016.
58. D. Kaguma, S. Karumba, A. Walcott-Bryant, K. Weldemariam. *Towards Cooperative Content Downloading for Resource-constrained Mobile Devices*, in Proceedings of ACM International Conference on Mobile Software Engineering and Systems (MobileSoft 2016), pp. 189-198. ACM, 2016.
57. J. Mutahi, O. Bent, A. Kinai, K. Weldemariam, B. Sengupta, D. Contractor. "Seamless Blended Learning Using the Cognitive Learning Companion: A Systemic View," *IBM Journal of Research and Development*, Volume:59 , Issue: 6, Pages 8:1 - 8:13. IBM, 2015.
56. M. Zeni, E. Ondula, R. Mbitiru, A. Nyambura, L. Samuel, K. Fleming, K. Weldemariam, "Low-power Low-cost Wireless Sensors for Real-time Plant Stress Detection," in Proceedings of The ACM Symposium on Computing for Development (DEV), ACM DEV 2015: 51-59. 2015.
55. A. FaizKhademi, M. Zulkernine, K. Weldemariam, "Empirical Evaluation of Web-based Fingerprinting," *IEEE Software*, Volume 32 (4), Pages 46-52. IEEE, 2015.
54. A. FaizKhademi, M. Zulkernine, K. Weldemariam, "FPGUard: Runtime Detection and Prevention of Web-based Fingerprinting", The 29th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy. Volume 9149, Pages 293-308. Springer, 2015.
53. J. Mutahi, O. Bent, A. Kinai, K. Weldemariam, B. Sengupta. *Capturing Learner's Activity Stream Data from a Mobile Learning Environment using an Adaptive Event Framework*, in Proceedings of ACM International Conference on Mobile Software Engineering and Systems (MobileSoft 2015), pp. 109-112. IEEE, 2015.
52. J. Clarkes, O. Bent, J. Mutahi, A. Kina, S. Srivastava, K. Weldemariam, "Towards Capturing Learners Sentiment and Context," *The second annual meeting of the ACM Conference on Learning at Scale*, pp. 217-222. ACM, 2015.
51. K. Weldemariam, H. Shahriar, M. Zulkernine and T. Lutellier. Effective Detection of Vulnerable and Malicious Browser Extensions. *Journal of Computers & Security*, Volume 47, November 2014, Pages 66-84. Elsevier, 2014.
50. H. F. Hashemi, M. Zulkernine, K. Weldemariam, "TabsGuard: A Hybrid Approach to Detect and Prevent Tabnabbing Attacks," *In Proceedings of the 9th International Conference on Risks and Security of Internet and Systems (CRiSIS)*, pp. 196-212, Springer, 2014.
49. P. Dey, M. Mohania, K. Weldemariam. "Some Issues in Modeling User Behavior Data in Systems of Engagement," *In Proceedings of The 4th International Conference on Model & Data Engineering (MEDI 2014)* pp.9-12, Springer, 2014.
48. K. Fleming and K. Weldemariam. "From Needs to Services: Delivering Personalized Water Assurance Services in Urban Africa," *Conceptual Modeling - 33rd International Conference (ER 2014)*, pp. 445-457, Springer, 2014.
47. J. Marston, K. Weldemariam, and M. Zulkernine. Evaluating and Securing Firefox for Android Browser Extensions. *In the Processings of the ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft'14)*, pp. 27-36, ACM, 2014.

46. K. Weldemariam, H. Shahriar, V. Devendran. Dynamic Analysis of Web Objects. *The 7th International Conference on Security of Information and Networks (ACM SIN 2014)*, ACM.
45. D. Chaudhari, M. Zulkernine, K. Weldemariam. CRank: A Component Ranking Framework for more Reliable Software. *In Proceedings of 8th International Conference on Software Security and Reliability (SERE 2014)*, San Francisco, USA, pp.31–40, IEEE, 2014.
44. K Fleming, K. Weldemariam, N. Wangusi and O. Stewart. Monitoring Water Scarcity Risk in Africa. *In Proceedings of The 29th ACM Symposium On Applied Computing (ACM SAC 2014)*, Gyeongju, Korea, ACM, 2014.
43. A. Kinai, R. Bryant, E. Mibuari, A. Walcott Bryant, K. Weldemariam and O. Stewart. Twende-Twende: A Mobile Application for Traffic Congestion Awareness and Routing. *In the Proceedings of the ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft'14)*, pp. 93–98, ACM, 2014.
42. A. Kinai, R. Bryant, E. Mibuari, A. Walcott Bryant, K. Weldemariam and O. Stewart. Traffic 411: Using Context Information for Traffic Congestion in Nairobi. *In Proceedings of The 29th ACM Symposium On Applied Computing (ACM SAC 2014)*, Gyeongju, Korea, ACM, 2014.
41. K. Weldemariam, C. Wayua, O. Stewart. Rethinking Agribusiness Models in Africa. *In Proceedings of The 29th ACM Symposium On Applied Computing (ACM SAC 2014)*, Gyeongju, Korea, ACM, 2014.
40. B. Eshete, A. Villafiorita, K. Weldemariam, M. Zulkernine. EINSPECT: Evolution-Guided Analysis and Detection of Malicious Web Pages. *Proceedings of the 37th Annual International Computer Software and Applications Conference (COMPSAC)*, IEEE, 2013.
39. A. Barua, M. Zulkernine, K. Weldemariam. Protecting Web Browser Extensions from JavaScript Injection Attacks. *Proceedings of the 18th International Conference on Engineering of Complex Computer Systems (ICECCS)*, Singapore, July 17-19, IEEE, 2013.
38. F. Cuomo, E. Mibuari, K. Weldemariam, O. Stewart. Leveraging Raspberry Pi for Interactive Education. *Proceedings of The ACM Symposium on Computing for Development (DEV)*, ACM, 2013.
37. H. Shahriar, K. Weldemariam, T. Lutellier, M. Zulkernine. A Model-Based Detection of Vulnerable and Malicious Browser Extensions. *In Proceedings of 7th International Conference on Software Security and Reliability (SERE)*, IEEE, pp. 198–207, 2013.
36. B. Eshete, K. Weldemariam, A. Villafiorita, M. Zulkernine. Confeagle: Automated Analysis of Configuration Vulnerabilities in Web Applications. *In Proceedings of the 7th International Conference on Software Security and Reliability (SERE)*, IEEE, pp. 188–197, 2013.
35. U. Hunny, M. Zulkernine, K. Weldemariam. OSDC: Adapting ODC for Developing More Secure Software. *Proceedings of the 28th ACM Symposium On Applied Computing (SAC)*, ACM, 2013.
34. D. Chaudhari, M. Zulkernine, K. Weldemariam. Towards a Ranking Framework for Software Components. *Proceedings of the 28th ACM Symposium On Applied Computing (SAC)*, ACM, 2013.
33. A. Ciaghi, K. Weldemariam, P. Molini, A. Villafiorita. Maputo Living Lab Summer School of ICTs: an Experience Report. *In The Proceedings of the IST-Africa Conference*, IEEE, 2013.
32. B. Eshete, A. Villafiorita, K. Weldemariam. BINSPECT: Holistic Analysis and Detection of Malicious Web Pages. *In Proceedings of the International Conference on Security and Privacy in Communication Networks (SECURECOMM)*, Springer, 2012.
31. A. Zewge, K. Weldemariam, S. Hailemariam, M. Belachew, A. Villafiorita, A. Susi. On the use of Goal-Oriented Methodology for Designing Agriculture Services in Developing Countries. *In Proceedings of the ACM International Conference on Management of Emergent Digital EcoSystems (MEDE)*, pp. 40-47, ACM, 2012.

30. A.F.N. Al-Shammari, K. Weldemariam, A. Villafiorita. Understanding the Development Trends of Electronic Voting Systems. *In Proceedings of the International Conference on Availability, Reliability and Security (ARES)*, pp. 186-195, IEEE, 2012.
29. K. Weldemariam, A. Villafiorita. Can Formal Methods Really Help: Analyzing the Security of Electronic Voting Systems. *Threats, Countermeasures, and Advances in Applied Information Security*. IGI Global, 2012. 361-380. 2012. [DOI:10.4018/978-1-4666-0978-5.ch018](https://doi.org/10.4018/978-1-4666-0978-5.ch018).
28. L. Cernuzzi, M. González, M. Ronchetti, A. Villafiorita, K. Weldemariam. Experiences in e-Governance from an ICT4G Perspective: Case Studies and Lesson Learned. *Global Strategy and Practice of e-Governance: Examples from Around the World*, IGI Global, 2011. 407-423. [DOI:10.4018/978-1-60960-489-9.ch023](https://doi.org/10.4018/978-1-60960-489-9.ch023).
27. A. F. N. Al-Shammari, K. Weldemariam, A. Villafiorita. Towards an Open Standard Vote Verification Framework in Electronic Voting Systems. *In Proceedings of the International Conference on Availability, Reliability and Security (ARES)*, pp. 437-444, IEEE, 2012.
26. H. Sahilu, A. Zewge, K. Weldemariam, A. Villafiorita, M. Belachew. Towards Designing an Architecture for Delivering Distributed Agricultural Information Services for Developing Countries. *In Proceedings of the ACM Symposium on Computing for Development (DEV)*, ACM, 2012.
25. K. Weldemariam, Amanuel Zewge, Henok Sahilu, A. Villafiorita and Mesfin Belachew. Towards Designing an Architecture for Delivering Distributed Agricultural Information Services for Developing Countries. *International Conference on ICT for Africa*, 2012.
24. K. Weldemariam, R. Kemmerer, A. Villafiorita. Formal Specification and Verification of an e-voting System: An experience report. *Journal of Systems and Software (JSS)*, 84(10): 1618-1637 (2011).
23. K. Weldemariam, A. Villafiorita. Procedural Security Analysis: A Methodological Approach. *Journal of Systems and Software (JSS)*, 84(7): 1114-1129 (2011).
22. B. Eshete, K. Weldemariam, A. Villafiorita. Early Detection of Security Misconfiguration Vulnerabilities in Web Applications. *In Proceedings of the Sixth International Conference on Availability, Reliability and Security (ARES)*, pp. 169-174, IEEE, 2011.
21. B. Eshete, A. Villafiorita, K. Weldemariam. Malicious Website Detection: Effectiveness and Efficiency Issues. *In Proceedings of the International SysSec Workshop (2011), In conjunction with the 8th Conference on Detection of Intrusions and Malware & Vulnerability Assessment*, pp. 123-126, IEEE, 2011.
20. A.F.N. Al-Shammari, K. Weldemariam, A. Villafiorita, S. Tessaris. Vote Verification through Open Standard: A Roadmap. *In Proceedings of the Second Workshop on Requirements Engineering for E-voting System (REVOTE)*, pp. 22-26, IEEE, 2011.
19. A. Ciaghi, K. Weldemariam, A. Villafiorita. Law Modeling with Ontological Support and BPMN: a Case Study. *In Proceedings of the International Conference on Technical and Legal Aspects of the e-Society (CYBERLAWS)*, 2011: 29-34.
18. K. Weldemariam, A. Villafiorita. A Formal Methodology for Procedural Security Assessment. *In Proceedings of the International Conference on Digital Society (ICDS)*, 2011: 46-51.
17. K. Weldemariam, A. Siena, A. Villafiorita, A. Susi. Enhancing Law Modeling and Analysis: using BPR-Based and Goal-Oriented Frameworks. *The International Journal on Advances in Security*, 3(3/4): 80-90 (2010).
16. B. Asfaw, D. Bekele, B. Eshete, A. Villafiorita, K. Weldemariam. Host-Based Anomaly Detection for Pervasive Medical Systems. *In Proceedings of the International Conference on Risks and Security of Internet and Systems (CRiSIS)*, pp. 1-8, IEEE, 2010.
15. K. Weldemariam, A. Villafiorita, A. Susi, and A. Siena. Modeling and Analysis of Laws using BPR and Goal-oriented framework. *In Proceedings of the International Conference on Technical and Legal Aspects of the e-Society (CYBERLAWS)*, pp. 353-358, IEEE, 2010.

14. K. Weldemariam, A. Villafiorita. A Survey: Electronic Voting Development and Trends. *In Proceedings of the International Conference on Electronic Voting (EVOTE)*, pp. 119-131, LNI, 2010.
13. B. Eshete, A. Mattioli, A. Villafiorita, K. Weldemariam. ICT for Good: Opportunities, Challenges and the Way Forward. *In Proceedings of the International Conference on Digital Society (ICDS)*, pp. 14-19, IEEE, 2010.
12. D. Bekele, B. Eshete, A. Villafiorita, K. Weldemariam. Context Information Refinement for Pervasive Medical Systems. *In Proceedings of the International Conference on Digital Society (ICDS)*, pp. 210-215, IEEE, 2010.
11. K. Weldemariam, R. Kemmerer, A. Villafiorita. Formal Specification and Analysis of an e-Voting System. *In Proceedings of the International Conference on Availability, Reliability and Security (ARES)*, pp. 164-171, IEEE, 2010.
10. A. Villafiorita, K. Weldemariam, R. Tiella. Development, Formal Verification and Evaluation of an e-voting System with VVPAT. *IEEE Transaction on Information Forensics and Security*, 4(4): 651-661 (2009).
9. A. Ciaghi, K. Weldemariam, A. Villafiorita, A. Mattioli, S.Q. Phan. Supporting Public Administration with an Integrated BPR Environment. *In Proceedings of the ICST Conference on e-Infrastructure and e-Services for Developing Countries (AFRICOMM)*, pp. 50-59, Springer, 2009.
8. K. Weldemariam, R. Kemmerer, A. Villafiorita. Formal Analysis of Attacks for e-voting System. *In Proceedings of the International Conference on Risks and Security of Internet and Systems (CRiSIS)*, pp. 26-34, IEEE, 2009.
7. K. Weldemariam, A. Mattioli, A. Villafiorita. Managing Requirements for e-voting Systems: Issues and Approaches Motivated by a Case Study. *In Proceedings of the International Workshop on Requirements Engineering for E-voting System (REVOTE)*, pp. 29-37, IEEE, 2009.
6. K. Weldemariam. Navigational Web-interfaces from Formal Tropos Specifications. *In Proceedings of the 10th Annual International Workshop on Engineering Societies in the Agents' World (ESAW)*, pp. 233-235, Springer, 2009.
5. K. Weldemariam, A. Villafiorita, A. Mattioli. Experiments and Data Analysis of Electronic Voting System. *In Proceedings of the International Conference on Risks and Security of Internet and Systems (CRiSIS)*, pp. 105-112, IEEE, 2009.
4. K. Weldemariam, Adolfo Villafiorita. Formal Procedural Security Modeling and Analysis. *In Proceedings of the International Conference on Risks and Security of Internet and Systems (CRiSIS)*, pp. 249-254, IEEE, 2008.
3. K. Weldemariam, A. Villafiorita. A Methodology for Assessing Procedural Security: A Case Study in E-Voting. *In Proceedings of the International Conference on Electronic Voting (EVOTE)*, pp. 83-94, LNI, 2008.
2. K. Weldemariam, A. Villafiorita. Modeling and Analysis of Procedural Security in (e)Voting: the Trentino's Approach and Experiences. *In Proceedings of the 3rd USENIX Electronic Voting Technology (EVT)*, USENIX Association, 2008.
1. K. Weldemariam, A. Villafiorita, A. Mattioli. Assessing Procedural Risks and Threats in e-Voting: Challenges and an Approach. *In Proceedings of the International Conference on E-Voting and Identity (VOTE-ID)*, pp. 38-49, Springer, 2007.

SELECTED PROFESSIONAL SERVICE

Selected Service

2020/21, NeurIPS 2020/21 Workshop - Mentorship on Tackling Climate Change with Machine Learning

2020/21, NeurIPS 2020/21 Tackling Climate Change with Machine Learning

2021, ICML 2021 Tackling Climate Change with Machine Learning

2018-now, NEF Scientific Program Committee — Advise on Scientific Agenda for NEF and evaluation of fellowship applications.

2021, Association for the Advancement of Artificial Intelligence.

2017, Served as PhD Examination Committee, University of Trento, Italy.

2013-2015, Adjunct Assistant Professor

Selected Charing

Workshops co-Chair: The 15th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC 2017) Orlando, Florida, USA.

General Chair: ACM Symposium on Computing for Development (ACM DEV) 2016, Nairobi, Kenya.

Track Chair: 12th edition of IEEE AFRICON 2015, Addis Ababa, Ethiopia.

Publicity Co-Chair: The 15 IEEE International Symposium on High Assurance Systems Engineering (HASE), Miami, Florida, January 9-12, 2014.

Panel Chair: Workshop on Quality Software for Quality Service at CASCON/IBM, Toronto, Canada, December 20, 2013.

Program Committee Co-Chair: The 8th IEEE International Workshop on Security, Trust and Privacy for Software Applications (STPSA), Kyoto, Japan, July 22-26, 2013.

Program Committee Co-Chair: The 2nd IEEE International Workshop on Requirements Engineering for Electronic Voting Systems (REVOTE), Trento, Italy, August 29, 2011.

Recent Selected Technical Program Committee

IEEE ICBC 2020-2021, AAAI-21 (Doctoral Symposium), ICSE'17-18, MobileSoft'17-18, HASE'17, ICTD'17, ACM DEV'16-18, HASE'16, COMPSAC 2016, RSDA 2016, DaWaK 2016.

2015 and before

The 39th Annual International Computers, Software & Applications Conference (COMPSAC), Taichung, Taiwan, 2015.

The 30th ACM Symposium On Applied Computing (ACM SAC - SE), 2015.

The 17th International Conference on Big Data Analytics and Knowledge Discovery (DaWaK), Valencia, Spain, 2015.

The 16 IEEE International Symposium on High Assurance Systems Engineering (HASE), Daytona Beach, Florida, USA, 2015.

The 9th IEEE International Conference on Quality, Reliability and Security (QRS), Vancouver, Canada 2015.

The 4th International Conference on IEEE Big Data Congress, New York, USA, 2015.

The 2nd ACM International Conference on Mobile Software Engineering and Systems, in Conjunction with ICSE 2015.

The 25th IEEE International Symposium on Software Reliability Engineering (ISSRE), 2014 (Industry Track)

The 38th IEEE Annual International Computers, Software & Applications Conference (COMPSAC), Stockholm, Sweden, 2014.

The 29th ACM Symposium On Applied Computing (ACM SAC), Japan, 2014.

The 1st ACM International Conference on Mobile Software Engineering and Systems, in Conjunction with ICSE, Hyderabad, India, 2014.

The 8th IEEE International Conference on Software Security and Reliability (SERE), Washington, 2014.

IBM Research Digital Learning Workshop, February 27-28, 2014, New Delhi, India.

The 8th IEEE International Workshop on Security, Trust and Privacy for Software Applications (STPSA), Kyoto, Japan, July 22-26, 2013.

The 7th International Conference on Digital Society (ICDS), Nice, France, February 24 - March 1, 2013.

The Sixth International Conference on Dependability (DEPEND), Barcelona, Spain, August 25 - 31, 2013.

The 23rd IEEE International Symposium on Software Reliability Engineering – Fast Abstract (ISSRE-FA), Dallas, TX USA, November 27-30, 2012.

The 4th International IEEE EAI Conference on e-Infrastructure and e-Services for Developing Countries (AFRICOMM), Yaounde, Cameroon, November 12-14, 2012.

The 6th International Conference on Digital Society (ICDS), Valencia, Spain, January 30 - February 4, 2012.

The 5th International Conference on Dependability (DEPEND), Rome, Italy, August 19-24, 2012.

The 3rd International ICST Conference on e-Infrastructure and e-Services for Developing Countries (AFRICOMM), Zanzibar Islands, Tanzania, November 23-24, 2011.

The 2nd International Workshop on Requirements Engineering for Electronic Voting Systems (REVOTE), Trento, Italy, August 29, 2011.

The Fifth International Conference on Digital Society (ICDS), Gosier, Guadeloupe, France, February 23-28, 2011.

The Fourth International Conference on Dependability (DEPEND), Nice/Saint Laurent du Var, France, August 21-27, 2011.

The 2nd International ICST Conference on e-Infrastructure and e-Services for Developing Countries (AFRICOMM), Cape Town, South Africa, November 25-26, 2010.

The 1st International ICST Conference on e-Infrastructure and e-Services for Developing Countries (AFRICOMM), Maputo, Mozambique, December 3-4, 2009.

Selected Journal Reviewer

IEEE Transactions on Information Forensics and Security

Software Quality Journaly (Springer)

Journal of Network and Computer Applications (JNCA, Elsevier)

Information and Software Technology (INFSOFT, Elsevier)

Journal of Systems and Software (JSS, Elsevier)

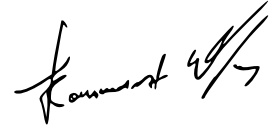
Security and Communication Networks (Wiley)

SOCIETY MEMBERSHIPS

Member, Institute of Electrical and Electronics Engineers (IEEE)

Member, Association for Computing Machinery (ACM)

Member, USENIX Association



Kommy Weldemariam
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