

Abenezer Girma

MACHINE LEARNING SOFTWARE ENGINEER | DATA SCIENTIST ·

111 Marshall Street Apt-R, Greensboro, NC, 27401, USA

☎ (336) 255-5560 | ✉ aggirma@aggies.ncat.edu | 🌐 <https://github.com/Abeni18> | 🔗 <https://www.linkedin.com/in/abenezerg/>

“Be the change that you want to see in the world.”

Education

North Carolina A&T State University (#1 STEM HBCU-University in the USA.)

Aug. 2017 - May. 2021

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

CGPA: 3.97/4.0

- Got a NASA Langley PhD fellowship: Scholarship which is given to promising students.

Addis Ababa University

Sep. 2011 - Jul. 2016

B.S. IN ELECTRICAL AND ELECTRONICS ENGINEERING

CGPA: 3.73/4.0

- Graduated with a great distinction honor.

Skills

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|--------------------------------|---|
| Programming Language. | Python, R, C++, JavaScript, React, LaTeX, SQL, NoSQL, MATLAB, JAVA, Spark, Hadoop, NetLogo. |
| Data science tools | Pytorch, TensorFlow, Keras, scikit-learn, scipy, OpenCV, Pandas, Numpy, Matplotlib, Seaborn, AWS, github. |
| Machine learning models | CNN, RNN, LSTM, XGBoost, GLM/Regression, Random Forest, Boosting, Trees, statistical modeling |
| Leadership | Cross-functional teammate, led institutional projects, wrote successful proposals. |
| Certifications | Lean Six Sigma green Belt, Machine learning on Google cloud, Deep learning specializations. |

Work Experience

National Institute of Aerospace | NASA Langley Research Center

Hampton, VA, USA

MACHINE LEARNING GRADUATE RESEARCHER

May. 2019 - Present

- Designed a 'Diverse Attention Module' (DAM) for computer vision tasks that improved the current best deep Convolutional Neural Networks (CNNs) architecture accuracy by up to 4%. The module is extremely efficient and easy to integrate it with any existing CNN architectures.
- Developed a deep learning sequence-to-sequence model to reduce road accidents by forecasting driver's intention at road intersections. Improved the baseline performance by more than 14% and increased recall rate by up to 99.6%.
- Led five Ph.D. students in integrating separately developed projects into one functional system and published the results in IEEE journal.

Autonomous Control and Information Technology Institute

Greensboro, NC, USA

GRADUATE RESEARCH ASSISTANT

Aug. 2017 - May. 2019

- Developed a deep learning LSTM based model to reduce autonomous-car hacks and theft problem by predict the identity of drivers from the driving behavior. Under a random-noise influence, the proposed model improved the accuracy by up to 50%.
- Developed and collaboratively implemented an autonomous framework designed to safely and effectively respond to natural disasters.
- Developed Internet-of-things (IoT) devices for effective data transfer between autonomous drones, ground vehicles and a cloud platform.
- Participated in developing autonomous drones and implementing a landing technique on moving Unmanned-Ground-Vehicles.
- Collaboratively develop a streaming data clustering algorithm to find patterns in unlabeled data, Without having no prior information about the data, the proposed approach improved the accuracy by up to 12%.
- Participated in developed unsupervised feature selection algorithm using a density-based clustering technique. Improved the over-all accuracy by up to 7% without using any prior knowledge about the data.

Total S.C

Addis Ababa, Eth

DIGITAL COMMUNICATION OFFICER | YOUNG GRADUATE SCHOLAR

Jun. 2016 - Jul. 2017

- Led the adaptation & marketing of 'Total service mobile' (TSM) app in Ethiopia, within the first two weeks more than 3000 people registered.
- Trained employees and selected customers on new digital technologies offered by the company, including TSM mobile app.
- Organized innovation weeks, digital workshops to facilitate the digital transformation of the company.

Addis Ababa University

Addis Ababa Eth.

JUNIOR RESEARCHER

Jan. 2013 - Feb. 2013

- Implemented Software Defined Networking (SDN) model technology for Addis Ababa university network topology.
- Successfully finished the project and presented my results to be adopted by Information Network Security Agency (INSA) company.

Honors & Award

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|-----------------|--|--------------|
| - Fellowship | NASA Langley research center with National Institute of Aerospace PhD fellowship award. | 2019-Present |
| - Scholarship | AAAI conference, Blacks in AI summit travel scholarship. | 2020 |
| - Workshop | Neural Information Processing System (NIPS) Blacks in AI workshop scholarship. | 2017 |
| - International | First place winner of Paris 2015 Climathon climate-friendly startup-project competition audience award . | 2014-2015 |
| - Scholarship | Wells Mountain Initiative scholarship. | 2014-2015 |

Leadership and Activities

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|---------------|--|----------------|
| - President | Founded Ethiopian Student Association at NCAT State University to help new coming graduate students. | 2020 - Present |
| - Coordinator | Organized university students to virtually tutor high school students affected by COVID19. | 2020 - Present |
| - Member | Black-in Artificial Intelligence founding member and IEEE student member. | 2017 - Present |
| - President | Ethiopia Amature Radio Club at Addis Ababa Universtiy. | 2014 - 2015 |

Publications

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|----------------------------|---|------|
| - IEEE Auto.Sinica Journal | IoT-enabled Autonomous System Collaboration for Disaster area Management. accepted | 2020 |
| - IEEE IV Conference | Deep Learning with Attention Mechanism for Predicting Driver Intention. link | 2020 |
| - IEEE Access Journal | A Novel Streaming Data Clustering Algorithm based on Fitness Proportionate Sharing. link | 2019 |
| - IEEE ICTAI Conference | Driver Identification Based on Vehicle Telematics Data using LSTM-Recurrent Neural Network link | 2019 |
| - IEEE SMC Conference | Unsupervised Feature Selection through Fitness Proportionate Sharing Clustering link | 2018 |

Certifications

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|---|--|
| - Neural Networks and Deep Learning. Credential link | - Art and Science of Machine Learning. Credential link |
| - Improving Deep Neural Networks and Hyperparameter tuning. Credential link | - Structuring Machine Learning Projects. Credential link |
| - Launching into Machine Learning. Credential link | - How Google does Machine Learning. Credential link |
| - Convolutional Neural Networks. Credential link | - Sequence Models. Credential link |
| - Complete Guide to TensorFlow for Deep Learning with Python. Credential link | - Feature Engineering. Credential link |
| - Hadoop Foundations (IBM) Credential link | - ES fundamental with SAP |
| - Six-sigma Green belt | |

Sample relevant courses

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|---|--|
| - Machine learning algorithms and Artificial Intelligence | - Big data analytics |
| - Computer vision Intel robotic application | - Data analytics methods |
| - Multivariate Statistics for Engineer | - Data Science Essential |
| - Calculus I, II and III | - Sequence Models |
| - Object Oriented Programming, JAVA | - Python for data-science and C++ |
| - Pattern recognition | - Computational Modeling and Visualization |
| - Genetic Algorithms | - Computer Architecture and Organization |