

# 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.)

Ph.D. IN ELECTRICAL AND COMPUTER ENGINEERING

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

### Addis Ababa University

B.S. IN ELECTRICAL AND ELECTRONICS ENGINEERING

- Graduated with a great distinction honor.

Aug. 2017 - May. 2021

CGPA: 3.97/4.0

Sep. 2011 - Jul. 2016

CGPA: 3.73/4.0

## Skills

---

**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

---

- 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

---

- 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 Uverstiy.	2014 - 2015

## Publications

---

- 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

---

- 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

---

- 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