

# Chinedu Eleh

[cae0027](#) | [chinedueleh](#) | [mysite.com](#) | [nedueleh@gmail.com](mailto:nedueleh@gmail.com) | (334) 844-3738

---

## EXPERIENCE

### Microsoft Teals

Co-Teacher

Sylacauga, AL

Fall 2023 - present

- Co-teach Computer Science Discoveries ('23-'24), guiding students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.

### Auburn University

Graduate Teaching Assistant

Auburn, AL

2018 - 2024

- COSAM Drop-in Tutor: Assist in enhancing educational learning styles for 5-10 college students per week struggling in math and statistics courses
- Full Instructor: Taught College Algebra, Precal Algebra, Calculus I, Business Calculus, Differential Equations (Summer 2019/Fall 2023, Fall 2019, Summer 2021, Fall 2021, Summer 2023 respectively), with about 85% positive students evaluation, two sections per semester for an average of 35 students per session
- Recitation Instructor: Lead problems solving workshop, grade and hold office hours on Calculus I, I & II (Fall 2020, Spring 2021, Spring 2020 & Fall 2022 respectively) for about 500 students altogether
- Teaching Assistant: Grade and Hold office hours for Linear Differential Equations and Calculus I (80 students class cap for each)

### Charles Heerey Memorial Juniorate

Visiting Math Teacher

Urualla, Imo

March - April 2016

- Utilized the manipulative teaching approach to prepare Senior Secondary 3 (SS3) students for the WAEC Exam

### Greater High School

Mathematics Teacher

Jos, Plateau

Jan 2012 - Sep 2012

- Taught math to SS1 - SS3 students, each class with about 35 students

### Emeka Provision Store

Shop Manager

Jos, Plateau

March 2003 - Sept 2012

- Managed goods and stock; oversaw day to day running of store

## PROFESSIONAL DEVELOPMENT

### Deep Learning Nanodegree - Udacity

Aug 2021 - Dec 2022

- Learnt the fundamentals of gradient descent, backpropagation, and design constructs of neural networks from scratch, and predicted bike sharing
- Understand characteristics, inner workings, and applications of convolutional neural networks (CNNs) for image processing, object detection, and semantic segmentation
- A thorough intro to RNNs, LSTMs, GRUs with application to Tv script generation. Finally, developed expertise in GANs by building and training architectures like DCGAN, CycleGAN, ProGAN, and StyleGAN on different datasets for generating new images.

### Intermediate Software Engineering - CodePath

Aug - Nov 2022

- Hands on exposition to Big O, Hash Tables, Linked Lists, Stacks, Queues, Binary Trees, Strings, and Arrays, Graphs

### **Intro to Software Engineering - CodePath**

May - Aug 2022

- Classic Algorithms (sort, search, traversal, hashmaps, etc), Big O, Recursion, etc

### **Optimal Parameter Upscaling for Partial Differential Equation Models in Mathematical Biology - JMM**

April 2022

- Presentation at the 2022 Joint Mathematical Meetings on solving partial differential equations with heterogeneous parameter using polynomial chaos expansion

### **Integral Equations and its Applications - MSRI Berkeley**

July 2021

- Fully funded trip to MSRI Summer Graduate School (UC Berkeley) on Calderon-Zygmund Theory of Singular Integral Operators

### **Theory and Practice of Deep Learning - SIAM Summer School**

July 19-30 2021

- Fully funded trip to Cape Town, South Africa for Gene Golub SIAM Summer School on the Mathematical foundation of deep learning (held remotely due to COVID-19).

## PROJECTS

### **Optimal Upscaling with CVAE for Stochastic Simulations (PhD Work)** 2018 - present

- Implement and optimize conditional variational autoencoders to reconstruct fine scale solutions from coarse solutions of differential equations, generated from a forward solver of finite element method

### **An LSTM-based Toxic Comments Analysis with the Label Powerset Method** 2022 - present

- Incorporated a label powerset method with an LSTM model to learn the toxicity of Wikipedia's talk page edits such as "threats", "obscenity", "insults", "identity hate"

### **Capstone Project (Masters in Data Science)**

Fall 2022

- Analyzed astronomical data from Lawrence Livermore National Lab on *Stellar Blend Image Classification Using Computationally Efficient Gaussian Processes (MuyGPs)*. Conference Presentation at SDSS2023 (May 2023)

### **Deploying Sentiment Analysis Model (AWS Sagemaker) [\[demo\]](#)**

2021 - 2022

- Built a web app to classify movie review as either POS or NEG.
- The app sends requests to AWS Sagemaker hosted Sentiment Analysis model and gives feedback to the user through an Endpoint API

### **A Webapp that Interacts with a Database [\[demo\]](#)**

Summer 2021

- Set up a console based system, with MySQL as the backend database for the given data
- A web interface interacting with the backend database, including info area, input form, and result area

## TECHNICAL SKILLS

**Programming:** Python (FEniCS, Pytorch, tensorflow, keras, scikit-learn, SciPy, AWS Sagemaker); Matlab, R, & SQL

**Software:** HTML, CSS (personal webpage level), SAS (course work level), L<sup>A</sup>T<sub>E</sub>X, Word, Excel

**Operating System:** Linux, Windows, MacOS

## EDUCATION

Auburn University   College of Sciences and Mathematics PhD in Applied Mathematics	Auburn, AL 2018 - 2024
• CGPA 3.84/4.0	
Auburn University   College of Sciences and Mathematics MSc. in Data Science	Auburn, AL 2023
• CGPA 3.90/4.0	
African University of Science and Technology MSc. in Mathematics	Abuja 2017
• CGPA 3.56/4.0	
University of Nigeria BSc. in Mathematics	Nsukka 2016
• CGPA 4.70/5.0	

## SCHOLARSHIPS AND HONORS

- [Honorable Mention](#), Elevating Mathematics Video Competition of the National Academies of Sciences, Engineering, and Medicine. 2023
- Excellence in Teaching Award, Department of Mathematics and statistics, Auburn University, Alabama, USA. 2022
- Graduate Teaching Assistant, Department of Mathematics and Statistics, Auburn University, Alabama, USA. 2018
- African Development Bank's Scholarship Award at African University of Science and Technology, Abuja, Nigeria. 2017
- University of Nigeria, Nsukka. Certificate of Merit, Best Graduating Student in the Department of Mathematics for 2015/16 Session
- University of Nigeria, Nsukka. Certificate of Merit, Chief H. C. Emerole Mathematics Prize in Memory of Dr. Adiele Nwosu as the Best Graduating Student in the Department of Mathematics for 2015/16 Session
- University of Nigeria, Nsukka. Award for Academic Excellence as the Best Undergraduate Student of the Department of Mathematics for 2015/16 Session
- University of Nigeria, Nsukka. Certificate of Meritorious Service as General Coordinator, NFCS Gospel Band within 2014/15 Academic Session

## SERVICE

- Vice President Data Science Society at Auburn (DSSA). 2022 - present
- Zoom Moderator Parallel session of SIAM Southeastern Atlantic Section Conference. Sept 2022
- Volunteer Member COSAM Inclusion, Equity and Diversity Task Force. 2020 - 2021
- Corps Member, the National Youth Service Corps (NYSC) at Government Girls Day Secondary School, Talata Mafara. 2017-2018
- President of Gospel Band, Nigerian Federation of Catholic Students (NFCS), University of Nigeria, Nsukka. 2014-2016
- Electoral Chairman National Association of Mathematical Sciences Students, University of Nigeria, Nsukka. 2016
- Senior Prefect Regal High School, Giring, Jos. 2010 - 2011

- President Fellowship of Christian Students, Regal High School, Giring, Jos. 2008 - 2011

## RESEARCH EXPERIENCE

- [1] Bidese, R., Eleh, C., Zhang, Y., Molinari, R., Billor, N., Muyskens, A., & Priest, B. (2023). Stellar blend image classification using computationally efficient gaussian processes (muygps). *Extended Abstract Accepted for Presentation at SDSS2023 (May 2023)*.
- [2] Eleh, C. A., & van Wyk, H.-W. (2022a). Optimal parameter upscaling for partial differential equation models in mathematical biology. *Talk at 2022 Virtual Joint Mathematics Meetings (JMM 2022)*.
- [3] Eleh, C. A., & van Wyk, H.-W. (2022b). Optimal upscaling with transport maps. *Poster at MSRI Summer School on Integral Equations and Applications (June 2022)*.
- [4] Eleh, C. A., & van Wyk, H.-W. (2023). Show me a function: More than meets the eye. *Talk at Auburn University DMS Graduate Student Seminar (April 2023)*.