MICKY CHISOM NNAMDI

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RESEARCH INTEREST

I am a Ph.D. student in Electrical & Computer Engineering / Computer Science at Georgia Tech. My research interests encompass Bioinformatics, Machine Learning, Generative AI, as well as Signal and Image Analysis. The primary goal of my work is to forge innovative intersections between Deep Learning, Engineering, and Analysis. These intersections have broad applications in Clinical Decision Support, with a special focus on enhancing the trustworthiness of classification algorithms.

EDUCATION

Georgia Institute of Technology, Atlanta, GA   Aug 2021 – May 2025

Ph.D. Electrical & Computer Engineering, GPA 3.92/4.0

Minor: Computer Science

Relevant Courses: Machine Learning, Statistical Machine Learning, Computer Vision, Advanced Programming Technique, Data Visualization & Analysis, Online Decision Making, Advanced Digital Signal Processing, Medical Image Processing, Biomed-AI, and Health Informatics, Convex Optimization, Mathematical Foundation in Machine Learning.

Air Force Institute of Technology, Kaduna, Nigeria   Sept 2013 – July 2018

Bachelor's degree in electrical Electronics Engineering, GPA 3.93/4.0

Award: *Best Graduating Student*

SKILLS

- Programming: Python, HTML, C++, MATLAB.
- Database: SQL, Tableau, Spark, AWS.
- Framework / Libraries: Matplotlib, TensorFlow, Keras, Skicit-Learn, Panda, NumPy, PyTorch, OpenCV.

RESEARCH EXPERIENCE

Graduate Research Assistant   Aug 2022 – Present

MIBLAB, Georgia Institute of Technology

- Collaborate with Shriner Hospital to develop a predictive model for patient-reported outcomes after spinal deformity surgery.
- Implement a machine learning algorithm using the preoperative radiographic and SRS 22-R questionnaire to predict patients' post-surgical outcomes effectively.
- Provided a feasible machine-learning solution to various medical-related problems.
- Currently leading a team in designing a multimodal algorithm for predicting Obstructive Sleep Apnea and surgical operation outcome results.

WORK EXPERIENCE

Hamoye Technologies, Nigeria   July 2020 – Mar. 2021

Data Scientist Remote Intern

- Assisted in data wrangling and exploratory data analysis.
- Designed data modeling processes to create algorithms and predictive models and perform custom analysis.
- Provided a feasible machine-learning solution to various problems.

PROJECT

Event-Based Sensing for Drones   Summer 2022

- Modified the AirSim Drone Racing Lab environment to accommodate dynamic obstacles.
- Implemented an effective algorithm to avoid these dynamic obstacles.

Quantitative Diagnoses of Psychiatric Disorders Using EEG Signals   Summer 2022

- ❖ Implemented a multi-class classification algorithm for different psychiatric disorders using electroencephalography (EEG) signals.
  Link: https://wizaaard.github.io/SM2022-CS7641-Project/

Event-Based Hand Gesture Recognition   Spring 2022

- Adapted concept from Large Minibatch SGD: Training ImageNet to develop an algorithm (StackResNet) to recognize motion maps extracted from various hand gesture data.

Identifying Parkinson's Disease Patients   Spring 2022

- Implemented a 1-dimensional Convolutional Neural Network model with an Early stopping monitor to predict the possibility of patients having Parkinson's disease.

AWARD

NSF Travel Award 2023

- Awarded the NSF travel award to attend the IEEE-BHI conference in Pittsburgh, USA

NSF Fellowship 2023

- Awarded the NSF Fellowship to attend the International Bio-X Summer School in Greece

  Link: http://2023.biocomplexitysummerschool.org/participants.html

Cadence Design System 2022

- Black Students in Technology Scholarship.

  Link: https://www.credly.com/badges/cd842f4f-fe16-456d-84f2-693ed376210b/linked_in?t=rnctdf

Georgia Tech ECE Fellowship 2021

- Awarded the Competitive Electrical & Computer Engineering departmental fellowship.

Erasmus-Mundus Scholarship Awardee 2021

- Awarded a full scholarship for the Medical Imaging and Application (MAIA) Program in Spain, France, and Italy after being ranked 8th (with a score of 6.8436 over 7 points) out of 535 applicants.

Data Science Open-Source Award

Hamoye Technologies, Nigeria

- Developed a Machine Learning Model to predict the Death Event due to Heart Failure & medical profile.
  Link: https://medium.com/hamoye-blogs/heart-failure-prediction-271be48c97b4

PUBLICATIONS

- J. Ben Tamo, Wenqi Shi, Yuanda Zhu, Micky C. Nnamdi, Henry J. Iwinski, J. Michael Wattenbarger, and May D. Wang. 2023. Adolescent Idiopathic Scoliosis Patient Subphenotyping for Surgical Planning and Improved Patient Outcomes. In 14th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (BCB '23), September 3–6, 2023 [Top 10% papers]
- Micky C. Nnamdi, J. Ben Tamo, Sara Stackpole, Wenqi Shi, Benoit Marteau, and May D. Wang. 2023. Model Confidence Calibration for Reliable COVID19 Early Screening via Audio Signal Analysis. In 14th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (BCB '23), September 3–6, 2023
- Micky C. Nnamdi, Wenqi Shi, J. Ben Tamo, Henry J. Iwinski, J. Michael Wattenbarger, and May D. Wang. Concept Bottleneck Model for Adolescent Idiopathic Scoliosis Patient Reported Outcomes Prediction. IEEE-BHI, October 15-18, 2023. [Top 12% papers]
- Monitoring health using IoT and ThingSpeak (published by International Journal of Information Processing and Communication IJIPC, December 26, 2020, Edition)
- Development of predictive models for patient rehabilitation outcomes after spinal deformity surgery: Towards personalized medicine *(Submitted to Nature for Review)*
- Uncertainty-Aware Ensemble Learning Models for Out-of-Distribution Medical Imaging Analysis *(Accepted by IEEE-BIBM)*

PRESENTATION

- Micky C. Nnamdi, Wenqi Shi, J. Ben Tamo, Henry J. Iwinski, J. Michael Wattenbarger, and May D. Wang. Concept Bottleneck Model for Adolescent Idiopathic Scoliosis Patient Reported Outcomes Prediction. IEEE-BHI, October 15-18, 2023

COMMUNITY ENGAGEMENT/LEADERSHIP EXPERIENCE

President / Georgia Tech Graduate Senate   May 2022 - Present
Georgia Tech African Graduate Students Connect (AGSC)
- Plan and execute virtual and in-person events to assist the African community present at Georgia Tech. These events increased the engagement of the African community by 12%.

Volunteer   Oct 2018 – Oct 2019
National Youth Service Corps (NYSC) / Environmental Sanitation and Beautification Group (ESBG)
- Participated in the environmental sanitation and beautification of my community through sensitization programs and projects. This is part of a one-year National Youth Service Corps (NYSC) program for college graduates and was implemented after the civil war to facilitate national unity. College graduates participating in the NYSC program are sent to localities they have not been to before to work and render aid.