

Temidayo Adeluwa



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"My motivation lies in answering fundamental questions in areas of pharmacogenomics and precision medicine by using computational and machine learning/deep learning techniques alongside knowledge in statistical genomics and algorithms, and in the building of software that translates this knowledge."

EDUCATION

Aug 2019 - Present **M.Sc. Biomedical Sciences** | University of North Dakota, ND, USA

Nov 2012 - Dec 2016 **B.Sc. Pharmacology** | College of Medicine, University of Lagos, Lagos, Nigeria
First class (Honors) | GPA 4.72/5.00 (3.81/4.00)
Best Graduating Student in the department (Rank: 1/~70)
Second Best Graduating Student in the college (Rank: 2/~400)

EXPERIENCE

(Research related)

Aug 2019 - Present **Graduate Research Assistant** | University of North Dakota, ND, USA
Advisor: Dr. Junguk Hur

- **Project:** I explored how some clinical information can contribute to PPD (postpartum depression) in women by using data mining techniques on a postpartum depression (PPD) dataset. This study resulted in a co-first author publication.
- **Project:** I integrated gene expression, drug information, and adverse event reporting information of various drugs to design models that can predict drug-induced liver injury. I also worked on a model-voting method that uses predicted probabilities to improve classification accuracy. This study resulted in a poster presentation and a talk. A co-first author manuscript is in preparation.
- **Ongoing:** Using computational and deep learning methods, I am currently investigating genome-wide targets of core pluripotency genes and how they change during neuroectoderm and mesodermal differentiation.
- **Ongoing:** Solely using metabolomic signatures, I applied machine learning techniques to build models that could classify patients who are positive with amyotrophic lateral sclerosis (ALS) from patients that do not have the disease. I gave a departmental seminar presentation on this project. I am further investigating this study by applying statistical methods and machine learning to studying time-dependent and disease progression-dependent changes in metabolomic signatures in ALS patients.

July 2014 - Oct 2016 **Undergraduate Researcher** | College of Medicine, University of Lagos, Lagos, Nigeria
Co-supervisors: Dr. Ismaila Ishola & Dr. Akinwunmi Akinyede

- I was appointed as the Director of Studies. Alongside a team, I organized Pharmacology and Chemistry tutorials which resulted in an improvement in students' overall academic performance.
- I provided research assistance to various students on diverse projects in both the Pharmacy and Pharmacology departments including using statistical software to analyze data.
- **Project:** I examined potential new mechanisms of action of vinpocetine in paraquat-induced Parkinsonism in mice and studied how vinpocetine might be beneficial in alleviating some symptoms of Parkinsonism. This study resulted in a publication.

EXPERIENCE

(Non-research related,
gap years)

Feb 2019 - Jul 2019 **Graduate Trainee** | Sterling Bank Plc., Nigeria

Aug 2018 - Jan 2019 **Content Writer/Head of Admissions/Social media and email marketer** | Hotels.ng

Jul 2017 - Aug 2018 **I worked in the pharmacy department** | 68 Nigerian Army Reference Hospital, Yaba, Lagos, Nigeria

Jul 2017 - Aug 2017 **I managed the pharmacy** | Luxe Pharmacy, Sabo Yaba, Yaba, Lagos, Nigeria

SKILLS & TOOLS

* Beginner | **Intermediate | *** Proficient

Programming

R*** (alongside statistics), Python***, Bash/Linux***, Java*

Machine Learning/Deep Learning

Caret***, mlr** & Keras** in R; SciKit-Learn**, TensorFlow***, PyTorch** & Mxnet* in Python; Octave (for prototyping)**

Database

SQL**

Research

Drug mechanism of action, Drug-drug interactions, Neuro-/Psycho-pharmacology, Neurodegenerative diseases, Machine learning/Deep learning, Pharmacogenomics/Precision medicine, Bioinformatics, Algorithms

Certifications

- [1] Data Science: Foundations using R (Coursera; Johns Hopkins University)
- [2] Artificial Intelligence Fundamentals (Data Science & Artificial Intelligence Academy; Sterling & Coven Works)
- [3] Professional Certificate in Data Science (edX; Harvard University)
- [4] Applied Data Science with Python Specialization (Coursera; University of Michigan)
- [5] Mathematics for Machine Learning (Coursera; Imperial College London)
- [6] Learn SQL Basics for Data Science (Coursera; UC Davis)
- [7] Python Programmer (DataCamp)
- [8] Google IT Automation with Python (Coursera; Google)
- [9] Bioinformatics Methods I & II (Coursera; University of Toronto)
- [10] Deep Learning Specialization (Coursera; deeplearning.ai)
- [11] TensorFlow 2 for Deep Learning Specialization (Coursera; Imperial College London)
- [12] Object-Oriented Programming in Java Specialization (Coursera; UC San Diego, Duke University)

AWARDS & HONORS

- [1] Provost Award for the Best Graduating Student in Pharmacology for the 2016/2017 Academic Session
- [2] Association of Pharmacology Students of the University of Lagos Award for the Most Outstanding Student
- [3] Certificate of Excellence/Merit for the Best Graduating Students of the College of Medicine and the Faculty of Pharmacy
- [4] University of Lagos Outstanding Scholars Award (\$150 annually for four years)

PUBLICATIONS

* Equal contribution/first or co-first authorship

- [1] Shin D*, Lee KJ*, **Adeluwa T***, Hur J. Machine Learning-Based Predictive Modeling of Postpartum Depression. *J Clin Med*. 2020;9(9):2899. Published 2020 Sep 8. doi:10.3390/jcm9092899
- [2] Ishola IO, Akinyede AA, **Adeluwa TP***, Micah C*. Novel action of vinpocetine in the prevention of paraquat-induced parkinsonism in mice: involvement of oxidative stress and neuroinflammation. *Metab Brain Dis*. 2018;33(5):1493-1500. doi:10.1007/s11011-018-0256-9

TALKS & PRESENTATIONS

* Equal contribution/first or co-first authorship

- [1] **Temidayo Adeluwa***, Brett A. McGregor*, Kai Guo, and Junguk Hur (2020), *Predicting Drug-Induced Liver Injury with Machine Learning Incorporating a Diverse Set of Public Datasets*. Cold Spring Harbor Laboratory (CSHL) Biological Data Science. November 4-6, 2020. Virtual. (Poster)
- [2] **Temidayo Adeluwa***, Brett A. McGregor*, Kai Guo, and Junguk Hur (2020). Annual International Conference on Critical Assessment of Massive Data Analysis (CAMDA 2020) - July 13-14, 2020. Virtual. (Oral)
- [3] Standard Prescription Writing (A call for Teamwork) (2017). An oral presentation given in the presence of military commanders at the 68 Nigerian Army Reference Hospital proposing a change to the structure and content of the prevailing prescription; 20 October, 2017 (Oral).
- [4] Peptide Therapeutics: Current Status and Future Directions. Department of Pharmacology, University of Lagos; 22 July, 2016 (Seminar presentation).
- [5] Recent Developments in Adenosine Receptor Ligands and Their Potentials as Novel Drugs. Department of Pharmacology, University of Lagos; August 25, 2016 (Seminar presentation).