Ola Oni
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EDUCATION

Weill Cornell Medicine, Cornell University — New York, NY, USA
Ph.D. Computational Biology and Medicine, GPA: A+ — Expected 2023
Thesis: Modeling Cas13 Screens with Self-Attention and Adversarial Regression
Supervisor: Dr. Thomas Norman

McMaster University — Hamilton, ON, Canada
M.Sc. Computational Science and Engineering, GPA: A — May 2019
Thesis: Multi-Platform Genomic Data Fusion with Integrative Deep Learning
Supervisor: Dr. Sanzheng Qiao

University of Waterloo — Waterloo, ON, Canada
B.Sc. Biochemistry/Biotechnology sp., GPA: A- — April 2017
Thesis: Biophysical Modeling of G-quadruplex DNA Aptamers and Graphene Oxide Interactions
Supervisor: Dr. Juewen Liu

RESEARCH EXPERIENCE

Memorial Sloan Kettering Cancer Center — New York, NY, USA
Graduate Researcher. Metastasis & Tumor Ecosystems Center. Supervisor: Dr. Thomas Norman. — Feb 2019 – Present

- Building computational pipeline for designing optimized CRISPR-Cas13 genetic screens.
- Designing state-of-the-art machine learning models for analyzing massively parallel assays to identify gene regulators in acute myeloid leukemia (AML).

Rotation 2. Metastasis & Tumor Ecosystems Center. Supervisor: Dr. Dana Pe'er. — Nov 2019 – Jan 2020

- Assisted in the investigation of drivers of lung cancer metastasis in the tumor micro-environment.
- Developed a collective matrix factorization algorithm for inferring immune and cancer cell-cell interactions from scRNA-seq data[5].

Rotation 1. Center for Molecular Oncology. Supervisor: Dr. Michael F. Berger. — June 2019 – Oct 2019

- Assisted in the analysis of plasma cell-free DNA to retrospectively study disease progression and investigate potential mechanisms of resistance in a cohort of metastatic lung cancer patients.
- Analyzed copy number alterations, structural variants and single nucleotide variations on ultra deep DNA sequencing data.

McMaster University, School of Computational Science and Engineering — Hamilton, ON, Canada
Graduate Researcher — Sept 2017 – May 2019

- Developing and implementing novel machine learning algorithms for the multimodal predictive analysis of cancer types.
- Developed distributed Apache Spark pipelines to implement deep learning algorithms on genomic data (RNASeq, miRNA, SNV, and DNA Methylation)[3].
- Designed method to use gated multimodal units for bimodal information fusion[2].

University of Waterloo, Center for Quantum Computing and Nanotechnology — Waterloo, ON, Canada
Research Assistant — Sept 2016 – April 2017

- Performed isothermal titration calorimetry (ITC) experiments with sequence modified DNA aptamers to discover novel binding configurations to adenosine and graphene oxide.

- Developed computational tools for biophysical modeling in Python, producing data quality assurance, and visualizations.
- Presented results to an audience of over 30 faculty and student attendees.
- Results were published in a peer-reviewed journal[1].

Environment Canada, Emergencies Science and Technology Section Ottawa, ON, Canada
Chemical Analyst Jan 2016 – Aug 2016

- Designed experiments for the isolation of naphthenic acids through primary secondary amine and silica gel solid phase extraction, where samples were resolved on high resolution orbitrap LC-MSD.
- Assisted in emergency environmental forensics and oil fingerprinting for the identification of key target compounds present in petroleum crude oils.
- Analyzed complex analytical data and built software to illustrate figures in Python and perform statistical analysis in R.

TEACHING

McMaster University, Department of Computing and Software Hamilton, ON, Canada
Teaching Assistant - CS/SE 4X03 - Scientific Computation Jan 2018 – May 2019

- Present weekly tutorials to over 150 undergraduate students.
- Develop lessons to teach numerical methods, data fitting, and calculus.
- Provide mentorship and after class assistance to students.

PUBLICATIONS

Peer-Reviewed

1 Zhang, Z., **Oni, O.**, & Liu, J. (2017). New insights into a classic aptamer: binding sites, cooperativity and more sensitive adenosine detection. Nucleic acids research, 45(13), 7593-7601.

Conference Proceedings

2 **Oni, O.**, & Qiao, S. (2019). Model-Agnostic Interpretation of Cancer Classification with Multi-Platform Genomic Data. In Proceedings of the 10th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (pp. 34-41). ACM.

Technical Reports

3 **Oni, O.** (2018). Distributed and Modular Deep Learning for Kidney Cancer Classification in Apache Spark. Department of Computing and Software, McMaster University.

4 **Oni, O.**, Ross, A., Heisey, J. (2017). Principle Component Analysis for Facial Recognition. Department of Computing and Software, McMaster University.

TECHNICAL SKILLS

Analytical: Machine Learning, Bioinformatics, Regression, Clustering, PCA & Dimensionality Reduction, Biostatistics
Programming: Python (scikit-learn, numpy, scipy, pandas, requests), R, Matlab, C, Bash, SQL, Spark, LaTeX
Web Design: HTML, CSS, JavaScript, Django, D3.js