

TECHNICAL SKILLS

- **Programming Languages:** Python (Pandas, NumPy, TensorFlow, Scikit-learn), SQL, Java, MATLAB, Unix/Linux scripting
- **Data Analysis:** SPSS, Weka, Power BI, Tableau, MS Excel, statistical modeling
- **Bioinformatics:** BLAST, GenBank, sequence alignment, genome annotation, phylogenetic analysis, RNAseq data analysis, protein structure prediction (AlphaFold, PyMOL)
- **Machine Learning & AI:** Neural Networks, Genetic Algorithms, Deep Learning, Predictive Modeling, Natural Language Processing (NLP)
- **Software Development:** Object-oriented programming (OOP), multithreading, concurrency, asynchronous programming, debugging, software testing, code optimization, version control (Git), Agile methodologies
- **Cellular and Molecular Biology:** PCR (RT-PCR, qPCR), cloning, primer design, RNA extraction, plasmid production, gel electrophoresis, restriction digestion, mammalian cell culture, transfection, viability, and metabolic assays
- **Protein Biochemistry:** Protein purification, Bradford quantification, SDS-PAGE, Western blotting, luciferase assays
- **Cryopreservation:** Controlled freezing, thawing protocols, viability assessment
- **Immunological Assays:** ELISA, immunofluorescence
- **Tools & Platforms:** Jupyter Notebook, Anaconda, ClustalW, PyMOL, Power BI, Tableau

PROFESSIONAL EXPERIENCE

Research Assistant – *Hamilton Urban Core Community Health Centre* 07/2024 – 01/2025

- Secured \$20M in funding for the Hart Hub initiative by conducting statistical analyses, community health assessments, and presenting evidence-based justifications aligned with provincial priorities
- Led research projects by designing surveys, interviews, and focus groups to deliver actionable insights for community health initiatives
- Conducted data analysis and modeling using SPSS, SQL, and Power BI, improving decision-making through enhanced visualizations for 8,000+ health records
- Collaborated with multidisciplinary teams to present reports and recommendations to executive and government stakeholders

Clinic Manager – *Crossroads North Medical Clinic* 08/2021 – 07/2024

- Managed outpatient operations, enhancing processes to improve efficiency and patient outcomes
- Oversaw clinical workflows including patient triage, intake procedures, and lab specimen analysis (hematology, neurology, toxicology)
- Coordinated with multidisciplinary teams to align treatment plans with patient care goals
- Streamlined medication management processes, ensuring alignment with diagnostic data and patient safety

Research Associate Intern – *Targa Biomedical* 05/2023 – 09/2023

- Improved transfection efficiency and cell viability in cell culture using nanoparticles and pharmaco-optimizers
- Collaborated on a cryopreservation viability protocol to improve cell viability assessments
- Executed cell culture protocols, including cryopreservation, plasmid production, and bacterial cultures
- Performed seeding, passage, plating, transfection, and assays (nuclei staining, live/dead, metabolic) to assess cell health
- Maintained aseptic techniques, ensured lab safety, and documented experiments for clear presentation to team members and supervisors

PROJECTS

- **AI-Driven Child Mortality Prediction:** Developed a machine learning model using TensorFlow and Scikit-learn to predict child mortality based on nutritional data using preprocessed datasets with Python and applied Simulated Annealing and Linear Regression to uncover correlations
- **Student Activity Analytics Tool:** Created a Python application to analyze student activity logs, performing data cleaning, descriptive statistics, and visualizations with Pandas and Matplotlib to reveal engagement trends
- **Primer Design and PCR Optimization:** Designed primers for the MEP1B gene with restriction sites and optimized PCR protocols. Results validated through gel electrophoresis
- **Structure-Based Drug Design:** Analyzed HIV-1 reverse transcriptase (PDB ID: 4G1Q) using AlphaFold, PyMOL, and BLAST to predict function and identify homologous structures. Conducted virtual screening with NRGsuite to identify potential drug inhibitors

EDUCATION

- **MSc | Computer Science with Artificial Intelligence** *University of York - 07/2024 - Present*
- **MScA | Biotechnology (High Distinction)** *McGill University*
 - Transcriptomics Certificate
 - Python Certificate
- **Project Management | Graduate Certificate (High Distinction)** *Conestoga College*
- **Honors Bachelors | Biology (High Distinction)** *Wilfrid Laurier University*
 - Recipient of the Dr. Kaye Hayashida Biology Award

CERTIFICATIONS

- Good Clinical Practice (GCP)
- Health Canada Division 5 Certification
- Transportation of Dangerous Goods (TDG/IATA)
- Responsible Conduct of Research (RCR)