Albert Guo

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Education

University of Toronto 2024 – 2028 (Expected)
B.Sc., Computer Science (Dean's List; Avg: 94/100) *Toronto, ON*

- *Relevant Coursework:* Adaptation & Biodiversity, Chemistry: Physical Principles, Foundations of Computer Science I (98%), Foundations of Computer Science II (98%), Calculus with Proofs, Intro Organic Chemistry I, Linear Algebra I (99%)

Experience

Machine Learning Researcher Jun. 2023 – Aug. 2024
Simon Fraser University

- Designed, developed, and tested a novel transformer-based architecture for non-invasive Alzheimer's disease diagnosis through gene expression data, utilizing scikit-learn and PyTorch.
- Developed a kernel-based linear discriminant analysis dimensionality reduction technique, improving AUC by **+0.354** and accuracy by **+26.5%**.
- Achieved SOTA performance across several benchmarks: **88%** accuracy and **0.95** AUC/ROC.
- Led to **two** first-author publications in IEEE CIBCB (2023 short paper; 2024 oral presentation).

Canadian High Schools Model United Nations May 2023 – Present
Strategy & Technology Roles

Strategy Advisor *Jul. 2024 – Present*
Under-Secretary-General, Information Technology *May 2023 – Jul. 2024*

- Supported operations for an **$250,000+** annual conference budget while updating and maintaining the website and registration for **800+** participants.
- Architected, deployed, and maintained a student-run news platform on AWS Lightsail; **100%** uptime during conference; publishing made frictionless for non-technical contributors.
- Managed conference technology **18** committee rooms and opening/closing ceremonies, including projectors, A/V equipment, printers, and related infrastructure.

Publications

"AGED-ViT: A Novel Transformer Based Framework for Diagnosis of Alzheimer's Disease by Leveraging Gene Expression Data."
***Albert Guo**, M. Fowler, K. C. Wiese*
2024 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB'24), Natal, Brazil, **oral presentation**, pp. 108–114. Link

"Alzheimer's in 16 x 16 Words: A Novel Transformer-based Framework for the Interpretation of Gene Expression Data."
***Albert Guo**, M. Fowler, K. C. Wiese*
2023 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB'23), Eindhoven, Netherlands, *short paper*. Link

Skills

Technologies: Python, PyTorch, scikit-learn, RDKit, R, Flask, Linux, Docker, Git, SQL, C, C++, Java, JavaScript
Skills: Machine Learning, Computational Biology, Computer Vision

Awards and Scholarships

Youth Can Innovate Grand Award — Canada-Wide Science Fair 2023

- **$8,000** cash award; Top **4** Senior science fair projects in Canada out of **20,000+** projects across all categories.

Team Canada Delegations, Youth Science Canada 2023

- Selected to represent Team Canada at international science fairs including MILSET ESI (Mexico) and LIYSF (London, UK).