

Oliver A.S. Lyon

BIOGRAPHICAL DATA

Name	Oliver Aaron Slotsve Lyon
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ACADEMIC RECORD

PhD (Candidate) Biochemistry and Molecular Biology <i>University of Calgary, Calgary, Alberta, Canada.</i> Supervisor: Prof. A.P. Jason de Koning;	2021-2025
MSc Computer Science <i>Queen's University, Kingston, Ontario, Canada.</i> Thesis: Nondeterministic State Complexity of Site-Directed Operations Supervisor: Prof. Kai Salomaa; Defence date: April 23, 2021	2019-2021
B.Sc (High Hons) Computer Science (Major) Mathematics (Minor) <i>University of Saskatchewan, Saskatoon, Saskatchewan, Canada.</i> Thesis: Lindenmayer Systems - Inferring Branching Topology Honours Supervisor: Prof. Ian McQuillan	2014-2019

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant <i>Department of Biochemistry and Molecular Biology, University of Calgary, Calgary</i> Cumming School of Medicine 2024 - 2025	
Graduate Teaching Assistant <i>Queen's University, Kingston</i> School of Computing 2019 - 2020	
Undergraduate Summer Research <i>Bioinformatics Lab, University of Saskatchewan, Saskatoon</i> Supervisor: Prof. Ian McQuillan 2019	
Undergraduate Summer Research <i>Department of Pathology and Laboratory Medicine, University of California Davis, Sacramento</i> Supervisor: Prof. Nam K. Tran 2018	
Undergraduate Summer Research <i>Numerical Simulation Research Lab, University of Saskatchewan, Saskatoon</i> Supervisor: Prof. Raymond Spiteri 2016	

AWARDS AND DISTINCTIONS

U of C Board of Governors Graduate Scholarship <i>Open Scholarship Competition - Doctoral</i> 15,000.00\$CAD	University of Calgary, 2024-2025
MDBC Program Travel Award <i>Medicine, Biochemistry and Molecular Biology Department</i> 1,000.00\$CAD	University of Calgary, 2023-2024
U of C Board of Governors Graduate Scholarship <i>Open Scholarship Competition - Doctoral</i> 8,000.00\$CAD	University of Calgary, 2023-2024
ACHRI Graduate Scholarship <i>Alberta Children's Hospital Research Institute</i> 34,000.00\$CAD	ACHRI, 2022-2024
Donald Knuth Reward Check <i>Stanford University</i> 2.56\$USD	Donald E. Knuth, 2020
Departmental Undergraduate Student Research Award <i>Department of Computing</i> 8,000.00\$CAD	University of Saskatchewan, 2019
Academy Distinguished Abstract Award <i>American Association for Clinical Chemistry</i> 500.00\$USD	AACC Annual Meeting, 2018
Best Abstract Award Hematology & Coagulation Division <i>American Association for Clinical Chemistry</i> 500.00\$USD	AACC Annual Meeting, 2017

Peer reviewed manuscripts

1. Lyon, O. A. & Salomaa, K. The nondeterministic state complexity of the site-directed deletion language operation. *Theoretical Computer Science* **968**, 113999. ISSN: 0304-3975. <https://www.sciencedirect.com/science/article/pii/S0304397523003122> (2023).
2. Farnsworth, C. W. & Lyon, O. A. S. QC a Risky Business: The Development of Novel Risk-Based Tools for Assessing QC Methods. *The Journal of Applied Laboratory Medicine* **8**, 3–6. ISSN: 2576-9456. eprint: <https://academic.oup.com/jalm/article-pdf/8/1/3/48490061/jfac123.pdf>. <https://doi.org/10.1093/jalm/jfac123> (Jan. 2023).
3. Lyon, O. A. S. & Inman, M. A Statistical Simulation to Evaluate the Robustness of Hb A1c Measurement in the Presence of Quantitative Error. *The Journal of Applied Laboratory Medicine* **8**, 67–76. ISSN: 2576-9456. eprint: https://academic.oup.com/jalm/article-pdf/8/1/67/48490090/jfac103_supplementary_data.pdf. <https://doi.org/10.1093/jalm/jfac103> (Jan. 2023).
4. Lyon, O. A. S. & Salomaa, K. *Nondeterministic State Complexity of Site-Directed Deletion in Implementation and Application of Automata - 26th International Conference, CIAA 2022, Rouen, France, June 28 - July 1, 2022, Proceedings* (eds Caron, P. & Mignot, L.) **13266** (Springer, 2022), 189–199. https://doi.org/10.1007/978-3-031-07469-1_5C_15.
5. Lyon, O. A. S. & Salomaa, K. Nondeterministic State Complexity of Site-Directed Insertion. *Journal of Automata, Languages and Combinatorics* **27**, 187–197. <https://doi.org/10.25596/jalc-2022-187> (2022).
6. Inman, M., Lyon, A. W., Lyon, O. A. S. & Lyon, M. E. Estimated Risk for Insulin Dose Error Among Hospital Patients Due to Glucose Meter Hematocrit Bias in 2020. *Archives of Pathology & Laboratory Medicine* **144**, 1204–1208. ISSN: 0003-9985. eprint: <https://meridian.allenpress.com/aplm/article-pdf/144/10/1204/2618129/i1543-2165-144-10-1204.pdf>. <https://doi.org/10.5858/arpa.2020-0101-RA> (Oct. 2020).

7. Khan, N. A., Lyon, O. A. S., Eramian, M. & McQuillan, I. *A Novel Technique Combining Image Processing, Plant Development Properties, and the Hungarian Algorithm, to Improve Leaf Detection in Maize in Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* (June 2020).
8. Lyon, M. E., Lyon, O. A. S., Tran, N. K., DuBois, J. A. & Lyon, A. W. An insulin-dose error assessment grid: A new tool to evaluate glucose meter performance. *Clinical Biochemistry* **70**, 30–33. ISSN: 0009-9120. <http://www.sciencedirect.com/science/article/pii/S0009912019304369> (2019).
9. Lyon, M. E., Sinha, R., Lyon, O. A. S. & Lyon, A. W. Application of a Simulation Model to Estimate Treatment Error and Clinical Risk Derived from Point-of-Care International Normalized Ratio Device Analytic Performance. *The Journal of Applied Laboratory Medicine* **2**, 25–32. ISSN: 2576-9456. eprint: <https://academic.oup.com/jalm/article-pdf/2/1/25/31552170/jalm0025.pdf>. <https://doi.org/10.1373/jalm.2017.022970> (Oct. 2019).
10. Lyon, A. W., Kavsak, P. A., Lyon, O. A. S., Worster, A. & Lyon, M. E. Simulation Models of Misclassification Error for Single Thresholds of High-Sensitivity Cardiac Troponin I Due to Assay Bias and Imprecision. *Clinical Chemistry* **63**, 585–592. ISSN: 0009-9147. eprint: <https://academic.oup.com/clinchem/article-pdf/63/2/585/32646226/clinchem0585.pdf>. <https://doi.org/10.1373/clinchem.2016.265058> (Feb. 2017).

Abstracts/ Posters

11. Lyon, O. A. S. & de Koning, A. P. J. *Experimental Design Factors Controlling Power to Detect Episodic Fitness Shifts using Comparative Genomic Sequencing Data in BioNet* (2024). Banff, Canada.
12. Lyon, O. A. S. & de Koning, A. P. J. *Distinguishability of Episodic Fitness Shifts from Changes in Effective Population in SBE Annual Meeting* (2023). Ferrara, Italy.
13. Lyon, O. A. S., Szafron, M., Lyon, M. E. & Lyon, A. W. *Effect of Creatinine Analytic and Biological Variation on Classification of Chronic Kidney Disease Stages using the CKD-EPI 2021 eGFR Equation in CSCC Annual Meeting* (2023). Winnipeg, Canada.
14. Lyon, M. E., Szafron, M., Lyon, O. A. S. & Lyon, A. W. *Projected Effect of Switching from the CKD-EPI 2009 to the CKD-EPI 2021 eGFR Equation in a Canadian Hospital in CSCC Annual Meeting* (2023). Winnipeg, Canada.
15. Lyon, O. A. S., Lyon, M. E., Tran, N. K. & DuBois, J. A. *The Effect of Glucose Analytical Error and Biological Variation on the Risk of Misclassification of Community Patients using American Diabetes Association Diagnostic Criteria in ATTD Meeting* (2019). Berlin, Germany.
16. Lyon, O. A. S., Lyon, M. E., Tran, N. K. & DuBois, J. A. *The Effect of Analytical Error and Individual Biological Variation of Hemoglobin A1c on the Risk of Misclassification of Diabetes and Pre-Diabetes American Diabetes Association Diagnostic Criteria in ATTD Meeting* (2019). Berlin, Germany.
17. Lyon, M. E., Lyon, O. A. S., Tran, N. K., DuBois, J. A. & Lyon, A. W. *Clinical risk of using the Nova StatStrip glucose meter in a critically ill patient population: Analysis with the Surveillance and IDEA error grids in CPOCT Meeting* (2018). Washington D.C., USA.
18. Lyon, M. E., Lyon, O. A. S., Tran, N. K., DuBois, J. A. & Lyon, A. W. *Assessment of the perchloric acid hexokinase and plasma glucose oxidase methods using glucose error grids in CPOCT Meeting* (2018). Washington D.C., USA.
19. Lyon, M. E., Lyon, O. A. S., Tran, N. K., DuBois, J. A. & Lyon, A. W. *Assessment of the risk of the Nova StatStrip glucose meter using the Insulin Dose Error Assessment (IDEA) Grid in CPOCT Meeting* (2018). Washington D.C., USA.
20. Lyon, M. E., Lyon, O. A. S., Tran, N. K., DuBois, J. A. & Lyon, A. W. *A novel tool to relate glucose meter performance to clinical outcome: The Insulin Dose Error Assessment (IDEA) grid in AACC/CSCC Annual Meeting* (2018). Chicago, USA.

21. Lyon, M. E., Sinha, R., Lyon, O. A. S. & Lyon, A. W. *Application of a Monte Carlo simulation model to estimate clinical risk associated with the analytic performance of point of care INR devices* in *AACC/CSCC Annual Meeting* (2017). San Diego, USA.

PRESENTATIONS

Nondeterministic state complexity of site-directed deletion CIAA 2022
Rouen France (2022)

IDEA error grid presentation and workshop MASA at Nova Biomedical Inc.
Boston United States of America (2019)

Stats and simulation workshop MASA at Nova Biomedical Inc.
Washington United States of America (2018)

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

Society for Molecular Biology and Evolution 2023-2026
Member

Journal of Applied Laboratory Medicine 2022-2024
Peer Reviewer

Graduate Computing Society 2019-2020
Social Officer and MSc. Graduate Committee Officer
Queen's University

American Association for Clinical Chemistry 2017-2019
Trainee

Physics and Engineering Physics Students' Society 2015-2016
Vice President External
University of Saskatchewan