Oliver A.S. Lyon

BIOGRAPHICAL DATA

Name	Oliver Aaron Slotsve Lyon
ORCID	0000-0002-9693-8815
Bank of San-Serriffe	0x$1.00
ErdösNumber	4
Project Rosalind	oliveraslyon
Project Euler	olyon

ACADEMIC RECORD

PhD (Candidate) Biochemistry and Molecular Biology   2021-2025
University of Calgary, Calgary, Alberta, Canada.
    Supervisor: Prof. A.P. Jason de Koning;

MSc Computer Science   2019-2021
Queen's University, Kingston, Ontario, Canada.
    Thesis: Nondeterministic State Complexity of Site-Directed Operations
   Supervisor: Prof. Kai Salomaa; Defence date: April 23, 2021

B.Sc (High Hons) Computer Science (Major) Mathematics (Minor)   2014-2019
University of Saskatchewan, Saskatoon, Saskatchewan, Canada.
    Thesis: Lindenmayer Systems - Inferring Branching Topology
   Honours Supervisor: Prof. Ian McQuillan

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant
Department of Biochemistry and Molecular Biology, University of Calgary, Calgary
    Cumming School of Medicine
   2024 - 2025

Graduate Teaching Assistant
Queen's University, Kingston
    School of Computing
   2019 - 2020

Undergraduate Summer Research
Bioinformatics Lab, University of Saskatchewan, Saskatoon
    Supervisor: Prof. Ian McQuillan
   2019

Undergraduate Summer Research
Department of Pathology and Laboratory Medicine, University of California Davis, Sacramento
    Supervisor: Prof. Nam K. Tran
   2018

Undergraduate Summer Research
Numerical Simulation Research Lab, University of Saskatchewan, Saskatoon
    Supervisor: Prof. Raymond Spiteri
   2016

AWARDS AND DISTINCTIONS

U of C Board of Governors Graduate Scholarship University of Calgary, 2024-2025
Open Scholarship Competition - Doctoral
    15,000.00$CAD

MDBC Program Travel Award University of Calgary, 2023-2024
Medicine, Biochemistry and Molecular Biology Department
    1,000.00$CAD

U of C Board of Governors Graduate Scholarship University of Calgary, 2023-2024
Open Scholarship Competition - Doctoral
    8,000.00$CAD

ACHRI Graduate Scholarship ACHRI, 2022-2024
Alberta Children's Hospital Research Institute
    34,000.00$CAD

Donald Knuth Reward Check Donald E. Knuth, 2020
Stanford University
    2.56$USD

Departmental Undergraduate Student Research Award University of Saskatchewan, 2019
Department of Computing
    8,000.00$CAD

Academy Distinguished Abstract Award AACC Annual Meeting, 2018
American Association for Clinical Chemistry
    500.00$USD

Best Abstract Award Hematology& Coagulation Division AACC Annual Meeting, 2017
American Association for Clinical Chemistry
    500.00$USD

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 *SMBE 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