




# Jordan Sawchuk

✉ [jordan\\_sawchuk@sfu.ca](mailto:jordan_sawchuk@sfu.ca)

✉ [jsawchuk@live.ca](mailto:jsawchuk@live.ca)





☎ (778) 581-4034

## Education






- 2023 – ····  **Ph.D. Simon Fraser University** Nonequilibrium statistical physics  
Thesis focus: *Differential geometry of optimal control in mesoscopic systems*  
Supervisor: *Dr. David Sivak*
- 2020 – 2023  **B.Sc. University of British Columbia** Honours physics, minor in mathematics.  
Thesis: *Quantization of constrained Hamiltonian systems and negative energy densities in QFT*.  
Supervisor: *Dr. Daniel Vollick*  
Graduating average: 97.1%
- 2018 – 2020  **A.S. Okanagan College** Associate of Science, Graduated with Distinction  
Graduating average: 96.15%

## Experience





### Academic

- 2024  **Conference Organizer**, Frontiers in Biophysics 2024
- 2022 – 2023  **Academic Assistant**, University of British Columbia.
- 2020 – 2021  **Writing Consultant**, University of British Columbia.
- 2019 – 2020  **Microbiology Laboratory Assistant**, Okanagan College.









### Teaching

- 2024  **Teaching Assistant**, Simon Fraser University.
- 2021 – 2023  **Teaching Assistant**, University of British Columbia.
- 2020 – 2023  **Math & Physics Tutor**, Self-employed.
- 2019 – 2020  **Physics Learning Assistant**, Okanagan College
- 2020  **Biology Laboratory Assistant**, Okanagan College

### Volunteering


- 2022  **Invigilation & marking**, BCSS Math Contest
- 2018-2022  **Farmhand**, Okanagan Fruit Tree Project Society
- 2017-2018  **Dog walker**, Prince George BCSPCA
- 2015  **English tutor**, Kamloops Immigration Centre

### Other

- 2019 – 2021  **Farmhand**, Lightfoot Farm (Kelowna, BC)
- 2018 – 2019  **Helicopter & drill pad construction**, BCR (Whitehorse, YT)
- 2017 – 2018  **Bartender**, Alpine Pub & Grill (Prince George, BC)
- 2016 – 2017  **Line cook**, Munin's Post (Kelowna, BC)
- 2016  **Dispatcher**, BC Wildfire (Kamloops, BC)
- 2015  **Regional lead landscaper**, Class Design (Kamloops, BC)
- 2014 – 2015  **Breakfast cook**, Fireside Grill (Kamloops, BC)
- 2013  **Sous chef**, Long John's Pub (Vernon, BC)

## Publications & Communication






### Journal Articles

- 1 **J. R. Sawchuk** and D. A. Sivak, "Global thermodynamic manifold for conservative control of stochastic systems," *Physical Review Research*, vol. 8, no. 1, p. 013 004, 2026.  DOI: [10.1103/j59j-q88v](https://doi.org/10.1103/j59j-q88v).

### Preprints







- 1 **J. R. Sawchuk** and D. A. Sivak, "Thermodynamic geometry of friction on graphs: Resistance, commute times, and optimal transport." arXiv: [2601.01273](https://arxiv.org/abs/2601.01273) [cond-mat]. (2026).

### Posters & Talks *(Presenter marked with an asterisk)*

- 1 **J. R. Sawchuk\*** and D. A. Sivak, "Equivalence of commute-time geometry, resistance distance, and thermodynamic geometry in slowly driven markov chains," Berkeley Statistical Mechanics Meeting, Berkeley, CA, 2026.  URL: <https://berkeleystatmech.org/index.html>.
- 2 **J. R. Sawchuk\*** and D. A. Sivak, "A global thermodynamic manifold for optimal conservative control," APS Global Physics Summit, Anaheim, CA, 2025.  URL: <https://summit.aps.org/events/MAR-W65/9>.
- 3 S. Alderson\*, G. Cornell, A. Menard, I. Kennedy, E. Launer, A. Nikou, **J. R. Sawchuk**, A. Zavahir, J. Andrews, F. Moosvi, H. Nakahara, and J. Bobowski, "Jupyter-based physics labs: Introducing scientific computing & discovery," UBC ALT-2040 Showcase, Kelowna, BC, 2024.  URL: <https://github.com/UBC-Okanagan-Physics-Labs/ALT-2040-Showcase/blob/5dc9b8871baa27ffeb948af1163d932a5e661d8d/Jupyter%20Labs%20-%2020240527.pdf>.
- 4 **J. R. Sawchuk\***, I. Kennedy, E. Launer, A. Zavahir, A. Nikou, J. Andrews, H. Nakahara, F. Moosvi, and J. Bobowski, "Integrating discovery and computational skills into first-year physics labs," UBC ALT-2040 Showcase, Kelowna, BC, 2023.  URL: <https://github.com/UBC-Okanagan-Physics-Labs/Celebrate-Learning-Week-Poster/blob/main/2023-ALT-2040-Poster-Jake-Bobowski.pdf>.
- 5 **J. R. Sawchuk\*** and J. Hopkinson, "Cation ordering on a lattice of corner-sharing tetrahedra: Investigation of a simple ising-like model, kelowna, bc," UBC Faculty of Science Undergraduate Research Award Symposium, 2022.  URL: <https://drive.google.com/file/d/1BXa6n3Th8LbiKmG93pxw5Qus9g58-CdT/view>.

## Honours & Awards

### Academic honours

- |      |   |   |
|------|---|---|
| 2023 |  | <b>Graduating Student Award in Physics</b> , University of British Columbia       |
| 2022 |  | <b>Upper-Level Physics Award</b> , University of British Columbia                 |
| 2021 |  | <b>Second Year Physics Award</b> , University of British Columbia                 |
|      |  | <b>Upper-Level Mathematics Award (Nominated)</b> , University of British Columbia |
| 2020 |  | <b>President's Award</b> , Okanagan College                                       |
|      |  | <b>Associate of Science Award</b> , Okanagan College                              |

### Workshops

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|------|---|--|
| 2025 |  | <b>Statistical Aspects of Nonlinear Physics Summer School</b> , Institut des Hautes Études Scientifiques |
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## Honours & Awards (continued)

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2022          **PSI Start Program**, Perimeter Institute

### Scholarships

2025 – 2028          **NSERC CGS-D**, Simon Fraser University

2023          **NSERC CGS-M**, Simon Fraser University

2022          **James R. Conway Scholarship**, University of British Columbia

2021 & 2022          **Deputy-Vice Chancellor Scholarship for Continuing Students**, University of British Columbia

2021          **Irving K. Barber Transfer Scholarship**, University of British Columbia

### Research Awards

2025          **Travel & Research Award**, Simon Fraser University

2023          **NSERC USRA**, Simon Fraser University

2022          **Irving K. Barber Undergraduate Research Award**, University of British Columbia