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Jordan Sawchuk

EDUCATION

M.Sc. - Theoretical Biophysics Simon Fraser University – Sivak Group	MAY 2023 - Present
B.Sc. - Honours in Physics, Minor in Mathematics University of British Columbia Okanagan (95.9% Avg)	MAY 2020 — APR 2023
PSI Start Program Perimeter Institute	APR 2022 — JUL 2022
Associate of Science Okanagan College (96.15% Avg)	SEP 2018 — MAY 2020

PROFESSIONAL EXPERIENCE

Academic Assistant University of British Columbia Okanagan	AUG 2022 — APR 2023 Kelowna, BC
<ul style="list-style-type: none">• While an undergraduate student at UBCO, I contributed to the redevelopment of the first year electromagnetism physics labs, including writing the manual for 4 of 8 labs and building experimental apparatuses.• We collected data to assess the successes and shortfalls of the program, and I played a major role in designing the structure of the study, was the primary author of the student and TA surveys, and carried out group interviews with student volunteers.	
Writing Consultant University of British Columbia	SEP 2020 — MAY 2021 Kelowna, BC
<ul style="list-style-type: none">• I guided undergraduate students through every aspect of the writing process, from planning a draft and finding resources to clarifying arguments, integrating sources, and proofreading.• Clients were frequently students who spoke English as an additional language.	
Microbiology Laboratory Assistant Okanagan College	JAN 2020 — MAY 2020 Kelowna, BC
<ul style="list-style-type: none">• I prepared petri dishes for labs, sanitized the lab space, and autoclaved lab equipment. The position ended early due to COVID-19.	
Additional Work Experience (Not comprehensive)	
• Farmhand : Lightfoot Farming - Kelowna, BC	JUL 2019 — SEP 2021
• Helicopter & drill pad construction : BCR - Whitehorse, YT	APR 2018 — JUL 2019
• Landscaper / Labourer : Old Man Contracting - Dawson City, YT	MAR 2018 — APR 2018
• Bartender : Alpine Pub & Grill - Prince George, BC	SEP 2017 — FEB 2018
• Line Cook : Munin's Post - Kelowna, BC	JAN 2017 — JUN 2017
• Dispatcher : BC Wild re - Kamloops, BC	MAR 2016 — SEP 2016
• Regional Lead Landscaper : Class Design- Kamloops, BC	MAR 2015 — OCT 2015

RESEARCH EXPERIENCE

Honours Thesis SEP 2022 — Present
University of British Columbia Kelowna, BC

- Studied quantum inequalities (lower bounds on negative energy fluctuations) for several fields in 2- and 4-dimensional spacetime. I completed a derivation of the quantum inequalities for the Proca field which was much simpler in form than the previously published derivation.
- Supervisor: Dr. Daniel Vollick

Undergraduate Research Award APR 2022 — SEP 2022
University of British Columbia Kelowna, BC

- I studied the emergence of magnetic sub-structures on a quarter-doped pyrochlore lattice. Numerical work involved simulated annealing (realized in FORTRAN) and data analysis and visualization (primarily Python). Analytic work involved developing order parameters associated with observed ground state structures and deriving the exact partition function for a simple model on a single unit cell. I presented my work at the 17th annual Undergraduate Research Awards Symposium in September 2022.
- Supervisor: Dr. John Hopkinson

TEACHING EXPERIENCE

Teaching Assistant SEP 2021 — APR 2023
University of British Columbia Kelowna, BC

- In 2021, I was a TA for the first year physics labs. This involved delivering brief introductory lectures on the theory, guiding students through the procedure, and marking lab reports
- In 2023, I ran the seminar for a 200-level course on relativity and quanta. Seminars involve group work where students are guided through new mathematical and physical concepts.
- I marked assignments for a 400-level statistical physics course

Math and Physics Tutor SEP 2020 — Present
Self-Employed Kelowna, BC

- I have tutored university physics, calculus, and high school math, successfully collaborating with each student to achieve drastic improvements in grades, comprehension, and confidence.
- My primary focus is to help students see the relationships between seemingly disparate concepts and to impart the sense that the new ideas they encounter are reasonable even if they are challenging.

Physics Learning Assistant SEP 2019 — MAY 2020
Okanagan College Kelowna, BC

- I held open hours in the campus learning centre to help students in physics and mathematics, focusing on problem-solving techniques and clarification of concepts.

Biology Laboratory Teaching Assistant JAN 2020 — MAY 2020
Okanagan College Kelowna, BC

- I assisted the lab instructor with set-up and tear-down for a Biology 121 lab. During the lab I helped students with the lab procedure and proper use of lab equipment. The position ended early due to COVID-19

VOLUNTEER EXPERIENCE

- Invigilator & Marker - BCSS Math Contest APR 2022
• Invigilated and helped mark tests at the BC Secondary School Math Contest at Okanagan College.
- Farmhand - Okanagan Fruit Tree Project Society MAR 2018 — AUG 2020
• Helped on the farm to provide fresh produce to the Kelowna food bank and women's shelter
- Dog Walker - Prince George SPCA DEC 2017 — FEB 2018
• Walked dogs during a cold Prince George winter
- English Tutor - Kamloops Immigration Centre SEP 2015 — DEC 2015
• I designed conversation-based lesson plans and implemented them weekly in meetings with a man whose primary language was Arabic.

HONOURS AND AWARDS

- NSERC CGS-M (\$17,500) - SFU SEP 2023
NSERC USRA (\$9000) - SFU MAY 2023
James R. Conway Scholarship (\$2100) SEP 2022
Deputy-Vice Chancellor Scholarship for Continuing Students (\$1000) - UBC SEP 2021 & 2022
Upper-Level Physics Award - UBC MAY 2022
Irving K. Barber Undergraduate Research Award (\$8000) - UBC APR 2022
Admitted to Perimeter Institute PSI START Program - Perimeter Institute APR 2022
Second Year Physics Award - UBC MAY 2021
Nominated for Upper-Level Mathematics Award - UBC MAY 2021
Irving K. Barber Transfer Scholarship (\$5000) SEP 2020
President's Award (Among top 3 graduates from all programs) - Okanagan College MAY 2020
Associate of Science Award (Top graduate from program) - Okanagan College MAY 2020

SKILLS & INTERESTS

- Computer skills Python, Java, FORTRAN, Maple, LaTeX, Bash
Software Proficiency Adobe InDesign, Adobe Illustrator, Vesta
Communication English (first language), Spanish (conversational)
Manual Skills Carpentry, wiring, soldering, use & maintenance of power tools, chainsaw use & safety, plant care
Misc. Interests Music (Guitar, banjo, pedal steel), construction & repair of musical instruments, fermentation, cooking, hiking & backcountry camping, environmentalism