Zoé Victoria Lord

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EDUCATION AND TRAINING

Doctorate of Philosophy in Chemistry

Queen's University [Sep 2022 – Current]

Final grade: 4.30 GPA (A+) | **Thesis:** An Investigation of Cognitive Load in Virtual Reality Chemistry Learning Environments

Links: https://www.queensu.ca/artsci/news/passion-mentorship-and-research-excellence | https://tinyurl.com/3xan4pk8

Bachelors of Science in Chemistry (Minor in Biology)

Concordia University [Sep 2019 – May 2022]

Final grade: Degree Honors with Distinction | **Thesis:** Stabilization of CsPbBr3 Nanocrystals in the Presence of Soy Lecithin as a Capping Agent Using Microwave-Assisted Solvothermal Synthesis

Bachelors of Science in Behavioral Neuroscience

Concordia University [Sep 2016 – Aug 2019]

Professional Certificate in Bioastronautics

International Institute for Astronautical Sciences [Mar 2023 – Nov 2024]

Field(s) of study: EVA Suit Evaluation

Private Pilot License

Global Training Flight Solutions [Sep 2022 – Current]

Open Water Scuba Diver

PADI [Feb 2023 – Jul 2023]

WORK EXPERIENCE

Concordia University

Link https://www.space.com/parabolic-flight-canada-weightless-student-science

Research Assistant and Team Lead

[May 2022 – Sep 2023]

Research assistant in Dr. Kadem's Laboratory of Cardiovascular Fluid Dynamics, within the Department of Mechanical, Industrial, and Aerospace Engineering. Led a team of undergraduate students to engineer a new class of cardiopulmonary resuscitation (CPR) manikins as a testing platform to optimize CPR procedures for human spaceflight missions using 3D-printed technologies and cardiovascular mechanics. This testing platform used a fiber optic pressure transducer to capture hemodynamic response while performing chest compressions under microgravity environments.

Gravitas Research Corps

Website: www.gravitasresearchcorps.org

Co-Founder and Lead Researcher

[Jan 2025 – Current]

Co-founded a not-for-profit organization focused on analog research and innovation to study Lunar and Martian environments.

Queen's University

Graduate Teaching Assistant

[Sep 2022 – Current]

Responsible for grading final exams, running tutorial sections and teaching laboratories for the following courses: General Chemistry, Organic Chemistry I and II, Applied Organic Chemistry, and Principles of Chemical Reactivity.

Concordia University

Laboratory Stock Keeper

[Sep 2021 – May 2022]

Prepared chemical materials and solutions. Assisted in running the teaching laboratories for the following courses: Organic Chemistry III and IV, and Biochemistry IV.

Queen's University

Hackathon Coordinator and Host

[Jan 2024 – Feb 2024]

Organized the Next Generation Medical Simulation Hackathon at the Clinical Simulation Centre and Ingenuity Labs Research Institute. This event aimed to encourage innovation in medical simulation technologies, where the hackathon challenged student teams on enhancing professional skills and competencies in real-world healthcare scenarios.

HONOURS AND AWARDS

[Feb 2025] Concordia University
Concordia University Alumni Recognition Award (John F. Lemieux Young Alumna Medal) Recipient of the John F. Lemieux Young Alumna Medal, awarded to a recent graduate within the past 10 years whose trailblazing spirit and next-generation approach in the pursuit of excellence challenges current-day boundaries in their field.

Link: https://www.concordia.ca/content/shared/en/profiles/offices/advancement/notable-concordians/zoe-victoria-lord.html

[May 2025] Queen's University
R. Samuel McLaughin Fellowship Awarded 10,000$ CAD in support of my Ph.D. research for the 2025-2026 academic year. This award is presented to first class doctoral students across Queen's University.

[Aug 2024] Canadian Space Agency
Canadian Space Agency (CSA) Grant Award Awarded 4,200$ CAD and selected as one of CSA's International Space Education Board (ISEB) students to attend the International Astronautical Congress 2024, alongside students supported by JAXA, ESA, NASA, and other ISEB member space agencies. This grant supported travel costs to Milan, Italy to present my research at the international conference.

[Sep 2024] Queen's University
Friends in Chemistry Award for Excellence in Teaching Nomination Recognized for my efforts in teaching 2nd year laboratories, specifically Principles of Chemical Reactivity. Nominated by former students for my continuous support in their studies and encouragement to succeed in the laboratory.

[Apr 2025] Space Generation Advisory Council
North and Central American Space Leader Award Recipient of the NCAC-SGW 2025 for significant contributions to the space sector across the North and Central American regions.

[Dec 2022] SEDS-Canada
Winning Candidate for Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge 2023 – Mission Specialist and Team Lead Selected by SEDS-Canada as one of four projects nationwide to engineer a payload for parabolic flight in the 2023 Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge. This award promoted the development of a research payload for a high-fidelity cardiopulmonary resuscitation (CPR) manikin optimized for space environments.

[Nov 2021] SEDS-Canada
Winning Candidate for Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge 2022 – Backup Mission Specialist Selected by SEDS-Canada as one of four projects nationwide to engineer a payload for parabolic flight in the 2022 Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge. This award promoted the development of a research payload to investigate the effects of micro- and hyper-gravity on the expression of stress-related STRE genes in human cells.

[Jun 2023] Canadian Society for Chemistry
'1st Place' Graduate Student Poster at Canadian Society for Chemistry Conference

[May 2022] Concordia University
'1st Place' and 'Most Liked Poster' at Student Leadership Conference

CONFERENCES AND SEMINARS

[Oct 2025] Montréal, Québec, Canada

Symposium Presentation at CSChE 2025 Lord, Z., Bongers, A., & Hungler, P. (2025, October 7). Multimodal Classification of Cognitive Load in Virtual Reality Environments for Chemical Engineering Education. In J. Verrett & B. Moeun (Chairs), *Education in Chemical Engineering* [Symposium presentation]. 75th Canadian Society of Chemical Engineering Conference, Montréal, Québec, Canada. https://www.xcdsystem.com/cic/program/0CzMEbA/index.cfm?pgid=3111&sid=30444&abid=117671.

[Oct 2024] Milan, Italy

Symposium Presentation at IAC 2024 Lord, Z., & Hungler, P. (2024). Ergonomic Evaluation of Extravehicular Activity (EVA) Systems of Musculoskeletal Strain and Fatigue During Extended Lunar Surface EVAs. *Proceedings of the 75th International Astronautical Congress* (pp. 443-440). International Astronautical Federation. https://doi.org/10.52202/078355-0055

[Oct 2024] Milan, Italy

Symposium Presentation at IAC 2024 Lord, Z., Kadem, L., & Leroux, L. (2024). The Pursuit for a Gold Standard Cardiopulmonary Resuscitation (CPR) Method for Human Spaceflight: A Novel CPR Testing Platform. *Proceedings of the 75th International Astronautical Congress* (pp. 180-189). International Astronautical Federation. https://doi.org/10.52202/078355-0022

[Oct 2024] Annapolis, United States

Invited Speaker at United States Military Naval Academy

[Apr 2025] Toronto, Canada

Oral Presentation at CITAC 2025 Johannessen, E., Lord Z., Szulewski, A., Hungler, P., & Gilic, F. (2025, April 9). *From Stress to Success: Classifying Cognitive Load in the Mastery Airway Curriculum with fNIRS* [Oral presentation]. 18th Clinician Investigator Trainee Association of Canada (CITAC) Annual Joint Meeting (AJM), Toronto, Ontario, Canada.

[Nov 2024] Sydney, Australia

Oral Presentation at CLT 2024 Johannessen, E., Lord, Z., Zaffari, G., Benjamin, R., Sartor, C., Szulewski, A., & Hungler, P. (2024, November 26). *Harnessing the Power of fNIRS in Applied Settings: A Systematic Review of Cognitive Load Measurement* [Oral presentation]. 16th International Cognitive Load Theory Conference, University of Sydney, Sydney, Australia.

[Oct 2023] Las Vegas, United States

Symposium Presentation at ASCEND 2023 Katkoria, G., Lord, Z., Singh, S., Schneider, G., Thomas, T., & Persad, A. (2023, October 24). Validating Wearable Biometric Monitoring for Diverse Health Profiles During Orbital Spaceflight. In Boryung (Chair) *Humans In Space* [Symposium presentation]. 4th ASCEND Conference, Las Vegas, Nevada, USA.

[Jun 2023] Vancouver, Canada

Poster Presentation at CSC 2023 Lord, Z., Hungler, P., & Bongers, A. (2023, June 5). *A Level-Up in Learning: An Investigation of Cognitive Overload in Virtual Reality Chemistry Learning Environments* [Poster presentation]. 106th Canadian Chemistry Conference and Exhibition, Vancouver, British Columbia, Canada. https://www.xcdsystem.com/cic/program/53nSuUT/index.cfm?pgid=2828&sid=26916&abid=99000.

[May 2022] Montréal, Canada

Poster Presentation at SLC 2022 Lord, Z., & Majewski, M. (2022, May 9). *Stabilization of CsPbBr3 Nanocrystals in the Presence of Soy Lecithin as a Capping Agent Using Microwave-Assisted Solvothermal Synthesis* [Poster presentation]. 1st Student Leadership Conference, Concordia University, Montréal, Québec, Canada.

PROJECTS

[Jan 2022 – May 2022]

Undergraduate Honors Thesis: Stabilization of CsPbBr3 Nanocrystals in the Presence of Soy Lecithin as a Capping Agent Using Microwave-Assisted Solvothermal Synthesis Completed a research project in Dr. Majewski's Solar Energy Conversion Group to examine the stabilization of cesium lead halide perovskite nanocrystals ($CsPbX_3$, X = Cl, Br, and I) under ambient conditions through the presence of lecithin capping groups. Microwave-assisted solvothermal methods were experimented to replace conventional hot-injection methods that require harsh reaction conditions and high energetic demands. Promising nanocrystals were further isolated and characterized by X-Ray Powder Diffraction, alongside UV/VIS, Photoluminescence, and ATR-IR Spectroscopic techniques. Thus, my independent study aspired to optimize the existing synthesis of cesium lead halide nanocrystals in order to enhance its stability under ambient conditions while supporting a greener and more sustainable approach.

VOLUNTEERING

[May 2024] Kingston, Canada
Volunteer for Medical Wilderness Simulation Training with Queen's University
Assisted in the facilitation of an extreme wilderness medical simulation training hosted by the Emergency Medicine department, in collaboration with both the Canadian Armed Forces' (search & rescue and special operations teams) and medical residents at Queen's University.

[May 2015 – Sep 2016] Montréal, Canada
Patient Care Volunteer (400+ Volunteer Hours) at the Lakeshore General Hospital
Provided support for volunteer services and auxiliary programs within the hospital. Supported nurses and staff in ambulation care and oral feeding for geriatric patients that are incapable of performing their daily functions.

[Jan 2016] Montréal, Canada
Voluntary Medical Assistant at the Centre Médical Brunswick
Worked alongside Dr. Dardashti at the Walk-In Clinic to assess and treat patients. Assisted with medical instruments, suture removal, and injections to facilitate the physician's medical consultation. Contributed feedback when recording medical history, vital statistics, and test results in patient's health records.

[Aug 2022 – Aug 2023] Montréal, Canada
Concordia Emergency Response Teammember (CERT) at Concordia University
Acted as a first responder at Concordia University to assist in evacuations and other emergencies that may occur on campus.

[Oct 2021 – Oct 2022] Montréal, Canada
Co-Lead Data and Biotechnology Scientist in Space Health Division at Space Concordia
Project manager of two space engineering payloads to design and test innovative biomedical devices and gene expression for microgravity environments. The first project, CPRad, aimed to improve the efficiency and outcomes of cardiopulmonary resuscitation (CPR) in space by using an assistant device that can provide real-time feedback on the force, depth, and rate of compressions applied during CPR. The second project, MICRO2, used a microfluidic platform to investigate the effects of micro- and hyper-gravity on the expression of stress-related STRE genes in human cells and was further analyzed through PCR bioanalytical testing.

[Jan 2022 – Jun 2024] Kingston, Canada
VR Classroom Initiative Coordinator and Educator Volunteer at Mars Society of Canada
Led the VR Classroom Initiative and closely worked with industry partners to immerse youth in an interactive exploration of space. Acted as an educator volunteer at the Mars Explorer Program by visiting Canadian elementary schools in the classroom to conduct lesson plans designed to teach young learners about Mars.

[Dec 2021 – May 2022] Montréal, Canada
VP of Academic Affairs for Chemistry and Biochemistry Department at Concordia University
Produced an academic podcast series featuring faculty members in the Chemistry and Biochemistry Department to showcase their diverse research groups housed at Concordia University.

Link: https://www.youtube.com/watch?v=YVphJZj-sdE&feature=youtu.be

[May 2023 – May 2024] Kingston, Canada
Volunteer Staff 2023 & 2024 at Science Rendezvous
Led the organization of the Virtual Reality booth hosted by the Ingenuity Labs Research Institute at Queen's University to showcase a pharmaceutical plant tour/simulation in virtual reality to engage the youth in STEM.