

Ian Lochhead

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Education

Doctor of Philosophy: Geography Simon Fraser University, Burnaby, BC	2017-2022
Master of Science: Geography Simon Fraser University, Burnaby, BC	2015-2017
Bachelor of Arts: Geography Simon Fraser University, Burnaby, BC <ul style="list-style-type: none">President's and Dean's List	2013-2015 2001-2004
Certificate: Spatial Information Systems Simon Fraser University, Burnaby, BC	2013-2015
Diploma: Marketing and Sales Management The University of British Columbia, Sauder School of Business <ul style="list-style-type: none">Top Academic Student – Second Year	2008-2011

Fellowships and Awards

University Graduate Fellowship Simon Fraser University, Burnaby, BC	2019 & 2020
NSERC Post Graduate Scholarship – Doctoral (3 year)	2018
Graduate Entrance Scholarship – Geography Simon Fraser University, Burnaby, BC	2017
University Graduate Fellowship Simon Fraser University, Burnaby, BC	2017
ESRI Canada ECCE App Challenge <ul style="list-style-type: none">3rd place in a team-based GIS app development competition for Canadian university students	2015
Top Academic Student – 2nd Year UBC, Sauder School of Business	2010

Research and Teaching Experience

MITACS Accelerate Internship Ocean Wise <ul style="list-style-type: none">Project: Using structure-from-motion and 3D analysis to visualize habitat complexity and dynamics of glass sponge reefs in British ColumbiaConducted a comprehensive literature review and designed a data capture strategy for structure-from-motion in temperate watersPerformed lab and field-based testing of multiple data capture strategiesConducted field research with the Ocean Wise research team.	2017-2019
Graduate Research Assistant Spatial Interface Research Lab, Simon Fraser University, Burnaby, BC <ul style="list-style-type: none">Developed GIS based interfaces for the visual analysis of geospatial data in multiple dimensions	2015-2022

- Collected primary geospatial data.

Teaching Assistant

2015-2021

Simon Fraser University, Burnaby, BC

- GEOG 100, 255, 356, and 457
- Developed 3D geovisualization and XR interface lab lessons and assignments
- Delivered weekly labs and graded lab assignments, exams, and project work
- Held weekly office hours to provide guidance and assistance to undergraduate students.

Conference Presentations

3D GeoInfo 2018

2018

Lochhead, I., and Hedley, N. 2018. Communicating Multilevel Evacuation Context Using Situated Augmented Reality. 13th 3D GeoInfo Conference, Delft, Netherlands.

Canadian Association of Geographers Annual Meeting

2015

Hollie Moulaison, Samantha Bets, **Ian Lochhead**, Andrew Wilson, and T. Wilkie

Mapping Play Deserts: A GIS Approach to the Study of Playability in the City of Vancouver

Research Papers

Lochhead, I., & Hedley, N. (2022). Evaluating the 3D Integrity of Underwater Structure from Motion Workflows. *Photogrammetric Record*, 37(177), 35–60. <https://doi.org/10.1111/phor.12399>

Lochhead, Ian, Hedley, N., Çöltekin, A., & Fisher, B. (2022). The Immersive Mental Rotations Test: Evaluating Spatial Ability in Virtual Reality. *Frontiers in Virtual Reality*, 3(January), 1–19.

Lochhead, I., & Hedley, N. (2021). Designing Virtual Spaces for Immersive Visual Analytics. *KN - Journal of Cartography and Geographic Information*, 71(4), 223–240.

Lochhead, I., & Hedley, N. (2021). Dry-lab benchmarking of a structure from motion workflow designed to monitor marine benthos in three dimensions. *The Photogrammetric Record*.

Arzu Çöltekin, **Ian Lochhead**, Marguerite Madden, Sidonie Christophe, Alexandre Devaux, Christopher Pettit, Oliver Lock, Shashwat Shukla, Lukáš Herman, Zdeněk Stachoň, Petr Kubíček, Dajana Snopková, Sergio Bernardes, Nicholas Hedley (2020) "Extended Reality in Spatial Sciences: A review of Research Challenges and Future Directions," *ISPRS International Journal of Geo-Information*, 9(7).

Hedley, N., and **Lochhead, I.**, (2020) "Turning 3D Data Surveys of Intertidal Zones into New Modes of 3D Visualization, Simulation and Spatial Interface Experiences," *ISPRS Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XXIV ISPRS Congress 2020.

Lochhead, I., and Hedley, N. (2020) "3D Modelling in Temperate Waters: Building Rigs and Data Science to Support Glass Sponge Monitoring Efforts in Coastal British Columbia," *ISPRS Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XXIV ISPRS Congress 2020.

Lochhead, I., and Hedley, N. (2018) "Communicating multilevel evacuation context using situated augmented reality," *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, IV-4/W6 (13th 3D GeoInfo Conference), 33–40.

Lochhead, I., and Hedley, N. (2018) "Mixed Reality Emergency Management: Bringing Virtual Evacuation Simulations into Real-World Built Environments," *International Journal of Digital Earth* 0 (0). Taylor & Francis: 1–19.

Lochhead, I., & Hedley, N. (2017). Modelling evacuation in institutional space: linking 3D data capture, simulation, analysis and visualization workflows for risk assessment and communication. *Information Visualization*, 147387161772081.

Additional Work Experience

Regional Sales Representative

2010-2013

Cullen Diesel Power Ltd.

- Maintained customer relationships throughout Western Canada, Alaska, Washington, and Oregon
- Provided technical assistance, advised on product applications, and oversaw onsite installations
- Presented product information to engineers, sales associates, and maintenance personnel in a boardroom setting.