University of Victoria | Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Arts

of

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BA (McGill University, 2016)

"Tracing Ice Age Artistic Communities: 3D Modeling Finger Flutings in the Franco-Cantabrian"

Department of Anthropology

Wednesday, December 12, 2018
3:00 P.M.
Clearihue Building
Room B021

Supervisory Committee:
Dr. April Nowell, Department of Anthropology, University of Victoria (Supervisor)
Dr. Yin-Man Lam, Department of Anthropology, UVic (Member)
Dr. Leslie Van Gelder, Richard W. Riley College of Education and Leadership, Walden University (Outside Member)

External Examiner:
Dr. Andrea Jalandoni, Australian Research Centre for Human Evolution, Griffith University

Chair of Oral Examination:
Dr. Christopher Lalonde, Department of Psychology, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

Finger flutings are lines and markings drawn with the human hand in soft cave sediment in caves and rock shelters throughout southern Australia, New Guinea and southwestern Europe, dating back to the Late Pleistocene. Analysis of these markings can reveal characteristics of the creators, such as age, sex and group sizes. However, despite a comprehensive method of study, data collection is still reliant on in field measurements and is often constrained by physical challenges within the caves. Advances in technology allow us to record archaeological data in three dimensions. Creating 3D models of finger fluting panels would allow for off-site measurements and other forms of detailed analysis. In this thesis, I test three different 3D scanning techniques, photogrammetry, tripod structured light scanning, and handheld structured light scanning, to determine the most appropriate method for the documentation of finger flutings based on factors such as portability, cost, efficiency, accuracy, as well as other challenges present in cave and rock shelter settings. I created replica fluting panels in three different media and created 3D models of them. I then compared measurements taken from the panels in person to measurements taken from the 3D-scanned models to see if there is statistically significant difference between the models and the panel. The results of my experiment show that 3D models of finger fluting panels are accurate representations of the experimental panels and that photogrammetry is the technique that best meets the requirements of finger fluting research.