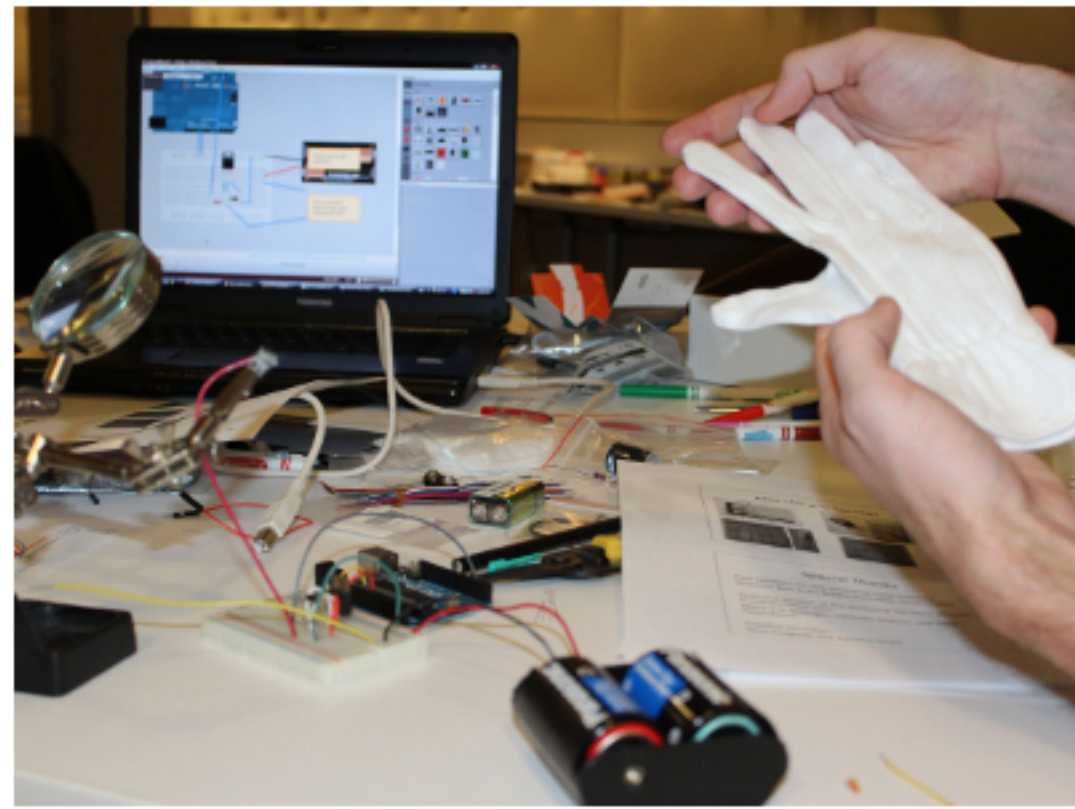# Exploring the Creation and Curation of Material-Digital Artifact Interactions for Informal Learning
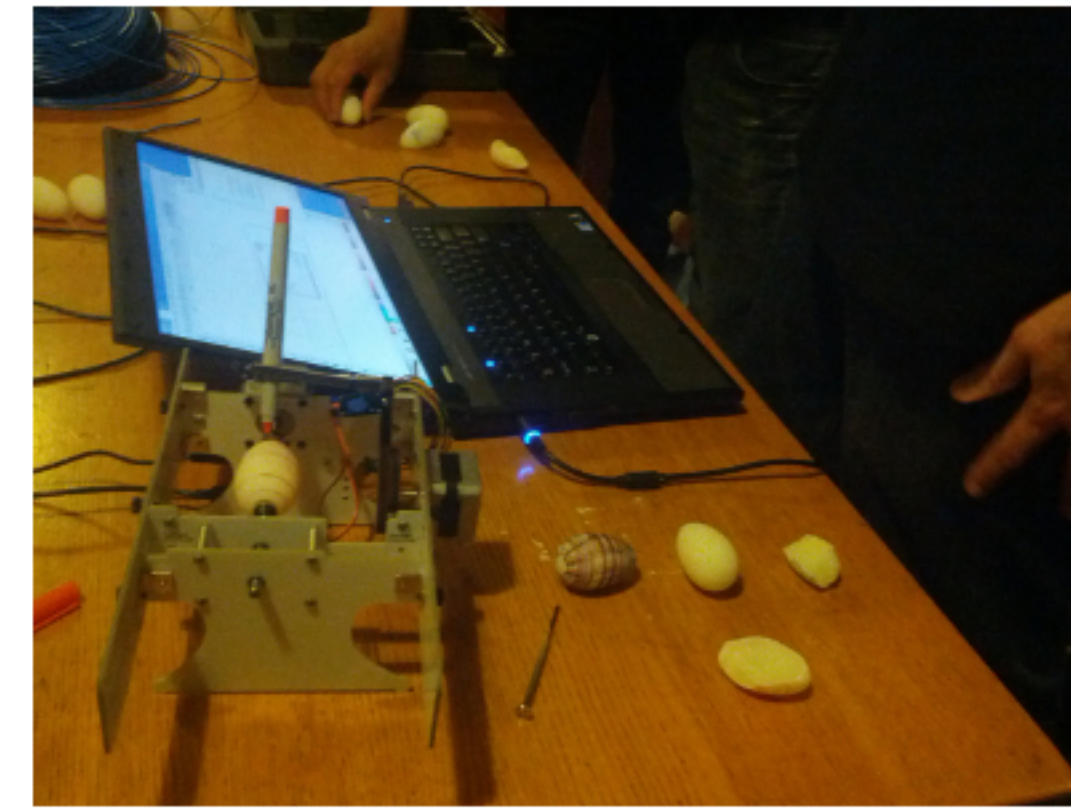
Gabby Resch, Faculty of Information, University of Toronto

DIY proshetics with microcontrollers and Nitinol muscle wire actuators

Paper prototyping mobile games at Mozilla-sponsored "Kids Hack Jam"

Exploring geometric patterns with an Egg-Bot and 3D-printed eggs

Making "paper robots" at the Weston Family Learning Centre at the AGO

3D scanning (and printing) objects, faces, and bodies with a Kinect

Background

My work is situated in institutional informal learning. It is grounded in a dynamic, interactive approach to *constructionist* learning in which actor and environment are mutually constitutive and inseparable, people and cultural artifacts are equally considered, and ethical responsibilities are emergent and situated (Maxwell, 2006). Key themes are informal scaffolding; generation of unique hybrid material-digital artifacts as epistemic objects; and an ontological stance that assigns primacy to processes of formation as against their final products, and to flows and transformations of materials as against states of matter (Ingold, 2007).

Doctoral Study Description

Inspired by Wood and Latham's (2011) call for exploration of museum curriculum through phenomenological touch (counter to "touch with the eyes" approach), I will employ a phenomenological methodological approach, looking beyond touch, toward a multisensory understanding of digital interactions in collaborative meaning making.

Digital Curation Issues

This research will offer insights into the conceptualization and creation of hybrid material-digital learning objects for informal learning, with an eye toward their future use as artifacts for iterative curriculum. It will emphasize the preservation of both the material artifact and the digital supports that accompany its construction (such as pieces of re-usable code, media, 3D designs, prototype sketches, and web-based instructional materials). It will explore whether these objects should be connected by their materialities, or the practices within which they arise, to the institutional artifacts that inspire their creation. It will explore how these novel creations might be considered for display or interaction, and whether they should assume extended life as captured digital artifacts (videos or photographs) or material artifacts with digital traces. It will ask to whom these objects should be attributed, and under what circumstances. It will seek to establish a sense of ontological continuity between material artifacts, material-digital hybrids, and the digital infrastructures that support these creative engagements.

Research Questions

How can the novel creations produced by these engagements be **integrated into existing institutional collections** in ways that **value both their materiality and digitality**? Furthermore, how can the **processes through which the objects come to life** (acknowledging the tools, documentation, and digital traces of collaborative exchange) be included? How does the **availability of objects and information from previous experiences** impact the kind of reflection learners might engage in? How should such epistemic objects be considered as **research data**?

References

Ingold, T. (2007). Materials against materiality. *Archaeological Dialogues, 14*(01), 1-16.

Maxwell, J. W. (2006). Re-situating Constructionism. *The International Handbook of Virtual Learning Environments*, 279-298.

Wood, E. & Latham, K.F (2011). The Thickness of the Things: Exploring the Museum Curriculum through Phenomenological Touch. *Journal of Curriculum Theorizing, 27*(2): 51-65.