LMC 6650 CRN 26881 Project Studio: Digital Craft (version 1/11/22)
Spring 2022
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Tue 12:30-3:15PM
TSRB 317 (corner lab)
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office hours: Mo 10-11 in TSRB 316B and online (ping me on Teams)

Overview

What can we learn from the relationship of materials with each other to re-think digital design for Human Computer Interaction? The class builds on existing research on craft, tangible, and physical computing and provides a specific lens on the role of materials in the design process itself. Inspired by scholars like Rosner, Buechley, Perner-Wilson, Wiberg, and Nimkulrat, we will follow the material turn in HCI into actual materials, their abilities and agencies. The goal is to explore opportunities for design that emerge from a material foundation. This approach builds on an embodied and embedded perspective proposed e.g. by Haraway or Ingold.

In this course, students will take materials as their initial source and inspiration to eventually design proof-of-concept prototypes that will live in the fields of physical computing and tangible interaction design. Existing work focuses often on materials such paper (Coelho) and particularly fabric (Rosner, Buechley). To open new venues, this class will center on clay/ ceramics as our start-off material. We will investigate the material's properties through multiple lenses, including guest lectures from ceramicists and scholars, a visit to the ceramics program at GSU, but most importantly through hands on exercises to explore the materials' features and abilities ourselves. Based on our material explorations we will ultimately design and build interventions that relate to, emphasize, converse with this material's own agencies.
The goal is not to teach any level of pottery as craft but to understand the material better through text discussions, external speakers, as well as through our own experiences. No pottery knowledge is required but students should be ready to tackle clay hands on.

The course reaches across disciplines as it includes approaches from material culture, HCI, and craft research. Students should expect readings, discussions, varying material explorations, critiques and iterative prototype developments. The course will constantly involve some work with clay in projects and exercises.

Knowledge in the use of Arduino or related technologies is beneficial but not required.
No prior experience with ceramics is required but willingness to dig in mud and to dive into tangible interfaces to learn from both is necessary.

Schedule

(note that changes are bound to happen please check the announcements on Canvas)

Day	Topic	Projected reading
1/11	**Turning to Materials** In-class discussion: 1) Bruce May Incomplete Manifesto (1998)	Kember/ Zylinska Thayne/ West

	In-class activity: 1) CM exercise with clay 2) Make those beads and present to class 3) Make some "neutral" beads out of earthenware	In-class: May
1/18	**Beyond Critical Making** In-class activity: 1) "letters to the editor" 2) Beads v2 **Assignment**: the "bowl" project	Ingold Haraway (Bennett) vs Ratto/ Hertz
1/25	**Artists' Relations** **Rachel Garceau** (guest talk) In-class activity: 1) "bowl" project exchange 2) Michael's "kit" 3) What paper did you pick for next week?	Cole/ Perner-Wilson (Leonard)
2/1	**Critical Craft** In-class activity: 1) Paper presentations **Due**: paper presentations in class	Nimkulrat; Määkela; Adamson
2/8	**Need and Networks** In-class activities: 1) Make an activity network for the "bowl" project 2) Identify features of the relation > what digital representation would with through that?	Nitsche; Latour (Risatti)
2/15	**Risk and Care** In-Class activities: 1) Related project presentation 2) Presentation of the "bowl" project with feedback **Due**: the "bowl" project – presentations in class **Assignment**: Final Project	Pye Bellacasa (Sherman)
2/22	**Field trip: GSU ceramic department visit** Darien Arikoski-Johnson talk and studio visit (wheel workshop TBC?)	
3/1	**The Materiality of Interaction** In-Class activities: 1) Clay archive 2) Primal clay game? 3) Own experiments	Wiberg; Frauenberger (Buechley)

	Due: you material relation presentation	

3/8	**Critical Fabulations**
	
	In-class activities:
	  1) Human voices in pottery (Dave the potter)
	  2) Short discussion of your chosen materials
		Rosner

3/15	**Material Culture (TBC)**
	
	Work on your final project
	
	In-class activities:
	  1) Present your design ideas
	  2) Critical feedback to ideas
	
	Due: design idea presentation
		(Glassie; Burrison)
		
		See examples by Oogjes et al.

3/22	Spring Break 2022	
3/29	**Critical Craft?** In-class activities: 1) Work on project	Adamson; Malafouris
4/5	**Work on final project** In-Class activity: 1) Discussion of prototypes **Due**: Prototype presentations	
4/12	**Work on final project**	
4/19	**Work on final project**	
4/26	(Last day of instruction) **Due**: Final presentations + video documentation	
4/29	**Due**: critical write up (no meeting)	

Grading and Main Deliverables

Assignment	Description	% of final grade
"bowl" project or material-material project	A physical prototype that demonstrates the relationship of two materials and their agencies (ceramic being one of them); you will have to identify the relations and agencies of the materials onto each other; the initial assignment is to build one container that is specialized for the materiality of the second (and not for a human to use) but you can develop this as far as you want as	15%

	this can be directly applied as well as conceptual; the key is a critical engagement with the meeting material agencies and their influences on each other **Deliverable**: physical prototype and presentation in class mini video and at least 10 images of process + 10 of the result on Canvas **Due: 2/15**	
Paper presentation	Pick a paper from the proceedings of the EKSIG (other are permitted but coordinate with the instructor) and present the project in class; put the work in relation to the discussions we had in class; relate it to the readings; develop the key contributions and provide key questions that arise from the work and lead a discussion in class to tackle these questions **Deliverable**: presentation in class and ppt on Canvas **Due: 2/1**	15%
Final Project: idea presentation	For the final project you will pick your own secondary material and explore its material agencies, needs, connections; your design process will first explore the relationship of that material to clay; then you will identify a key element in that relationship and design a digital intervention for humans based on it; this can be on the level of process (e.g. in the form of a hybrid craft practice) as well as in the object itself (e.g. in the form of a physical-digital piece); this project is broken down in **multiple steps**	
	First you research the materials relationships; document this exploration and experimentation exhaustively! Work with iterative design sketches that you collect and expand on; utilize tools (like the material relation kit and actor-networks) that help you to visualize the relationships and dependencies; the outcome is a highly detailed material exploration that identifies key relations through various data (images, videos, design notes, quantifiable data, relational experiments, speculations) you present the process how you arrived at this collection as well as resulting data in class in the form of a highly visual ppt; if possible: connect the process also to our readings and in-class discussions **Deliverable**: presentation in class and ppt on Canvas **Due:3/15**	10%
	Second, you design a digital response to at least one key relationship that emphasizes, improves, complicates these relations; this step includes the human participant in the material set up you have developed; the digital part will grow out of the particular material conditions and through its interaction design invite us humans to participate in them; this can take the form of a hybrid maker technique, embedded sensors and actuators in the piece, purely digital formats – it entirely depends on the need and focus of the design; the outcome is a physical object that presents material relationships as well as digital components that build on those relationships and allow humans to interact on their basis; you will present your final project in class in a ppt that cover the process, key design criteria and logic, implementation and	20%

	results, as well as connects the work back to our in-class discussions and texts **Deliverable**: presentation in class, ppt on Canvas + at least 10 images of process + 10 of the result **Due: 4/26**	
	Prototype presentation: part of the evolution from the concept to the design to the implementation is the delivery of a low fi prototype of your project; you present the prototype informally in class **Deliverable**: presentation in class + 10 images on Canvas **Due: 4/5**	5%
	Idea presentation: part of the design process is the informal presentation of your design idea (not graded) **Deliverable**: presentation in class + ppt (or other materials) on Canvas **Due: 3/15**	
	Third, you will document your results; this will be done in two ways: ➢ a short YouTube style video (~ 2 min) that explains its nature, evolution, and results (worth 5%) **Due: 4/26** ➢ a critical write up, which will take the form of a pictorial (modeled after DIS pictorials) (worth 10%) **Due: 4/29** both on Canvas	15%
Participation	active in discussions, active in example sessions; active in design meetings, teamwork, homework; activity and engagement in all meetings; attendance is not participation!	20%

No use of cell phones (including texting) in class.

100-90% = A
89-78% = B
77-64% = C
63-   = D

Grading of individual pieces will be in percentage
Late submissions lead to automatic reductions of the grade unless a valid excuse is provided. Any 1 day delay, meaning anything after 5pm of the due day, will have 10% reduced from the grade; any 2 day delay will have 20% reduced, 3 day delays will not be accepted.
The Honor Code of Georgia Tech applies (see http://www.honor.gatech.edu/).

Attendance
A student is allowed three excused absences. With the fourth absence, the student's participation grade will be lowered by 8 points, with the fifth an additional 8, six absences are an automatic failure of the class.
If a student needs to miss a class, contact the instructor 24 hours in advance. If Institute Approved Absences collide with class times please contact the instructor in advance to make sure the workload can be distributed.
Late submissions of any deliverable will receive a lowered grade (8% if up to 24 hour late, an additional 8% if up to 48 hours late, no submission is accepted beyond 2 days after the due date).

Inclusivity Statement
The Ivan Allen College of Liberal Arts supports the Georgia Institute of Technology's commitment to creating a campus free of discrimination on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. We further affirm the importance of cultivating an intellectual climate that allows us to better understand the similarities and differences of those who constitute the Georgia Tech community, as well as the necessity of working against inequalities that may also manifest here as they do in the broader society.

There is zero tolerance for discrimination or harassment on any basis, including but not limited to race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. Georgia Tech is committed to providing its staff, faculty, and students the opportunity to pursue excellence in their academic and professional endeavors. This opportunity can exist only when each member of our community is assured an atmosphere of mutual respect. Georgia Tech's full antiharassment policy is online here:
http://www.policylibrary.gatech.edu/anti-harassment-policy
Violation of any of these expectations will result in appropriate penalties, including but not limited to reduction of grade, rescinding of lab access, or disciplinary action.

These statements might read a bit impersonal and detached but I want to re-emphasize that the class space should be free of harassment of any kind and be a safe space for us to creatively engage together.

What to do if you fall behind or are stressed
Your health is more important than this class. Sometimes it is difficult for the instructor to have enough personal contact to see how you are. But you should know that your health and wellbeing are much more important than any grade or coursework. Let us help if any situation develops – the earlier the better. Again, please inform the instructor of any issues or challenges and do not hesitate to reach out.
Coursework can be demanding and everybody can encounter challenges sometimes. There are many reasons, such as an illness or a family emergencies, that might affect focus and studying conditions. If this happens to you, come and see the instructor about it as soon as possible to make alternate arrangements for work that has been missed, and continue coming to class.
If you encounter more pressing difficulties, anxieties, or mental health challenges, then please let the instructor know but also turn to the support we have in place at the Institute. This includes the Counseling Center (https://counseling.gatech.edu/) and CARE (https://care.gatech.edu/).

ADAPTS Accommodation
Students who feel that they may need an accommodation for any sort of disability, please make an appointment to see the instructor during office hours.
Students with disabilities should also contact Access Disabled Assistance Program for Tech Students (ADAPTS) to discuss reasonable accommodations. For an appointment with a counselor call (404) 894-2563 (voice) / (404) 894-1664 (TDD) email dsinfo@gatech.edu or visit Suite 123 in the Smithgall Student Services Building. More information at:
http://www.adapts.gatech.edu/ .

Sharing of work
Please be aware that your work might be accessible to others in future classes or in other academic presentations. This regards your code, presentations in class, as well as the videos and other deliverables. Participation in the course implies permission for sharing work with

others in the class and with future students if your work is judged to be a valuable example. If you are not comfortable with this, please let the instructor know. Unless you inform the instructor in writing (email) that you do not want your work shared with others in the context of current and future versions of this course, it is assumed that it is available.

Learning Outcomes

- Demonstrate the ability to analyze and critically evaluate existing digital media artifacts, services, and environments using formal knowledge, and to explain and defend one's critical evaluation.
- Demonstrate the ability to devise, design, create, and assess prototypical digital media artifacts, services, or environments and to contextualize them within recognized traditions of practice.

- Demonstrate ability to use common digital media authoring tools
- Demonstrate ability to set up and use common tools for writing code and managing the software development process
- Demonstrate use of digital media to create prototypes
- Demonstrate good time management skills
- Demonstrate ability to set realistic goals
- Can develop interactive media artifacts
- Can design and create digital artifacts that create the experience of agency for the interactor.
- Can communicate, coordinate, and work productively as a team member.
- Can summarize their work orally and in written form using formal terminology
- Can justify the design choices in their works

References
(selection)

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