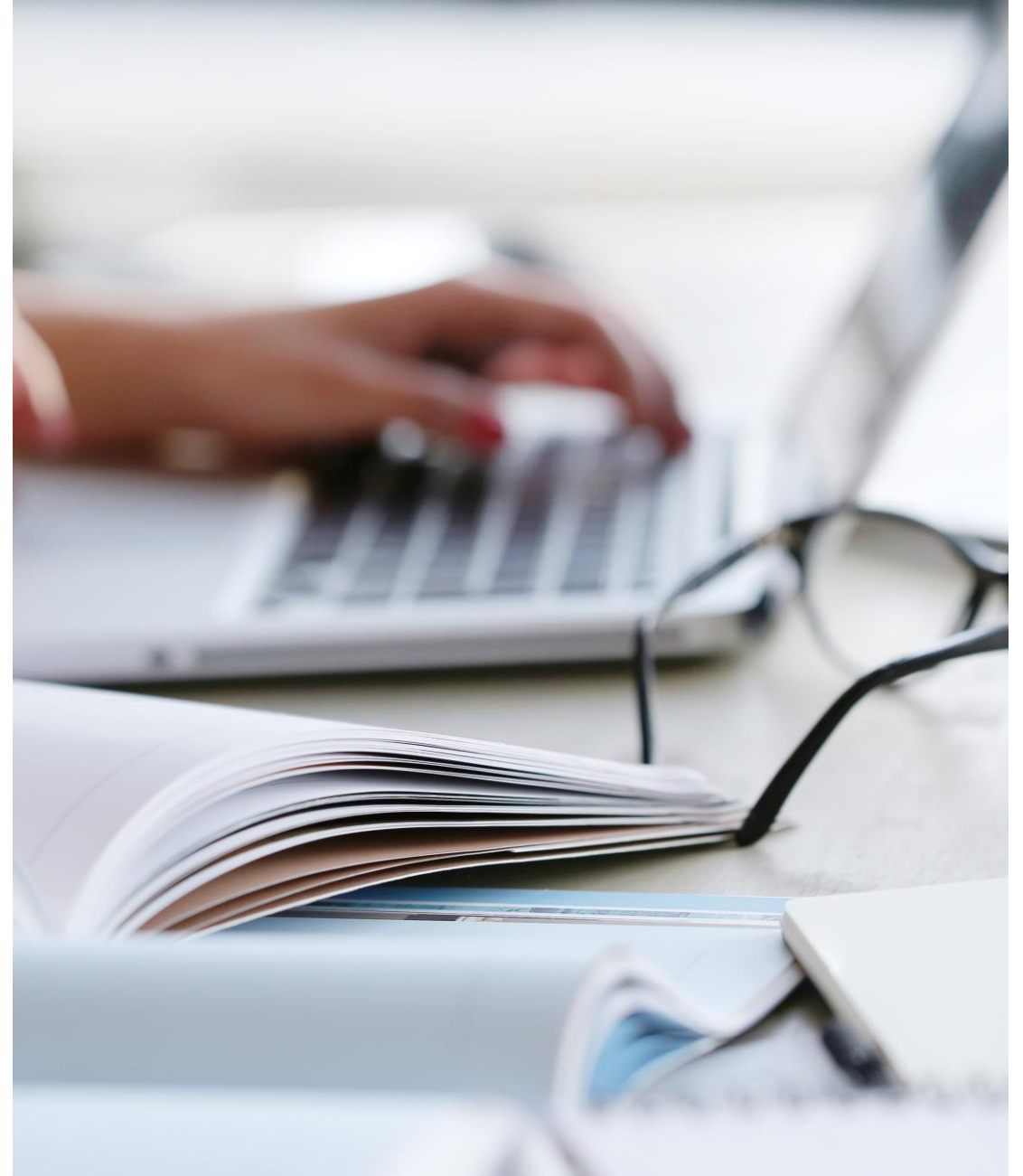


HAYES FORUM REPORT *AND* PRESENTATION

6300 DESIGN
Prof. PROULX

Josh Antolovic
Fateme M. Maklavani

SPRING 2024



Three different fields

We selected these areas of studies



Arts: The Arts - Mila Gajic



Social Science: Humanities - Maria Vitória de Rezende Grisi



Sciences: Food, Agricultural, & Environmental Sciences - Juan Quijia Pillajo

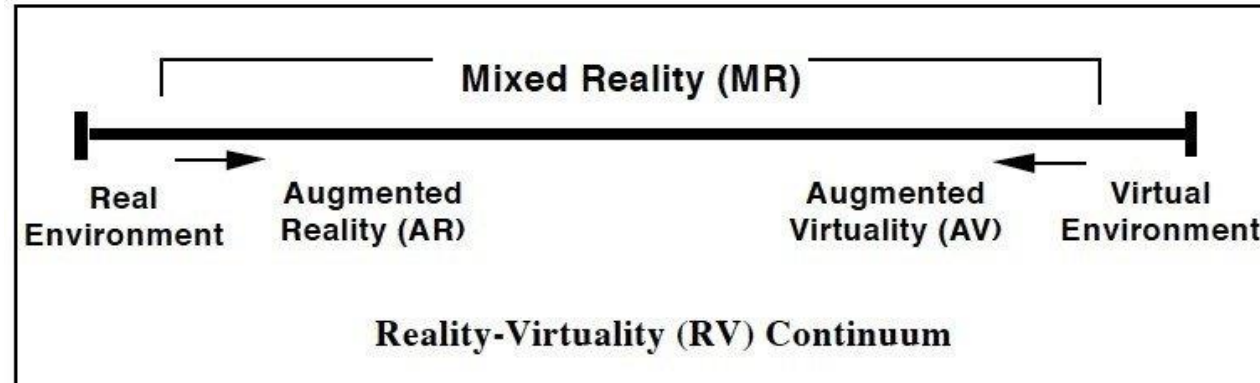


Field of study: Art (The Arts)

How can personal journey of inquiry be organized and experienced in VR

Mila Gajic, MFA in Digital Animation and Interactive Media

Summary



[Milgram and Kishino 1994]

- Reality-virtuality
- Research through design, human-centered design, storytelling design, arts-based research, reflective practice
- Spatial annotations
- Virtual affordance metaphors
- New experiential media presentation format

Research questions

- What virtual affordance do VR/AR technology provide?
- How does activating and deactivating of virtual affordances affect experience?
- Does the virtual affordances encourage exploration?
- How does agency and authorial control over virtual affordances alter the experience?

Methodology

Research through design

- **Human-centered design:** Experiential VR presentation format requires plenty of playtesting and receiving feedback from users. It is an iterative process driven by user response.
- **Arts-based research:** Mila adds personal details to her VR space from photogrammetry scans of objects around ACCAD to her own thesis document on a virtual computer.
- **VR storytelling:** Storytelling is completely immersive. The perspective/point of view is unique and requires thinking beyond 2D & 3D media.
- **Reflective practice:** As Mila returns to the model day by day, she makes slight adjustments. She has her own experience modeling it from the computer, and then experiencing it in VR/AR. The back and forth provides a slow drip of insights.

Result And Critical commentary

Results

- **Contributions**
 - Uncovering new experiential media presentation format
 - Visual to augmented transition: emerging affordance
 - Text positioning in immersive space
- **Future research opportunities**
 - Collect user data
 - Sustainability of project
 - Application to different fields/concepts

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Critical commentary

From Q&A:

- Aspect of the modeler looking at computer scene versus being in VR to design project
- How do we afford control over transition to AR and back to VR?

Rachel de Queiroz

O QUINZE



Field of study: Social Science

Mapping the Spaces of "O Quinze" using ArcGIS

Maria Vitória de Rezende Grisi, Graduate Teaching Associate
at College of Arts and Sciences, Spanish & Portuguese

Summary



<https://storymaps.arcgis.com/stories/c904e4b7f5cb4a67bbc5cf4efe33a8da>

- Visual analysis of O Quinze
- Topographic novels
- Deep mapping as method
- Handmade maps to ArcGIS
- Literary studies can gain insights from new tools

Research questions

- How can literary studies use more than words to analyze texts that are connected to experiences?
- How can literary studies use maps to learn more from the literature.

Methodology

Method via Digital Humanities and Ecocriticism

- **Deep Mapping:** Beyond two-dimensional rendering. Push to include depth through many layers, as well as 3D topography. Through this method, mapping attempts to be inclusive and not exclusive, specifically of important elements missing from 2D rendering techniques.
- **Spatial Analysis:** Taking notes of landmarks and sketching a map throughout the reading of the book.
- **Human Geography:** documenting the paths taken by characters as its own data.
- **Archival Research:** The fiction was related to a true historic event.
- **GIS Analysis:** Accurate portrayal of geography after initial map hand drawings.

Result And Critical commentary

Results

- ArcGIS and exploring non-traditional tools for literary analysis allowed Maria to see new aspects of the novel:
 - 1) The topography, which provided new insights into the characters' experiences.
 - 2) The imagery of the routes led to the recognition of parallels that represent the overview of Rachel de Queiroz's criticism.
- Literary studies can incorporate new technologies and revisit canonical texts.

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Critical commentary

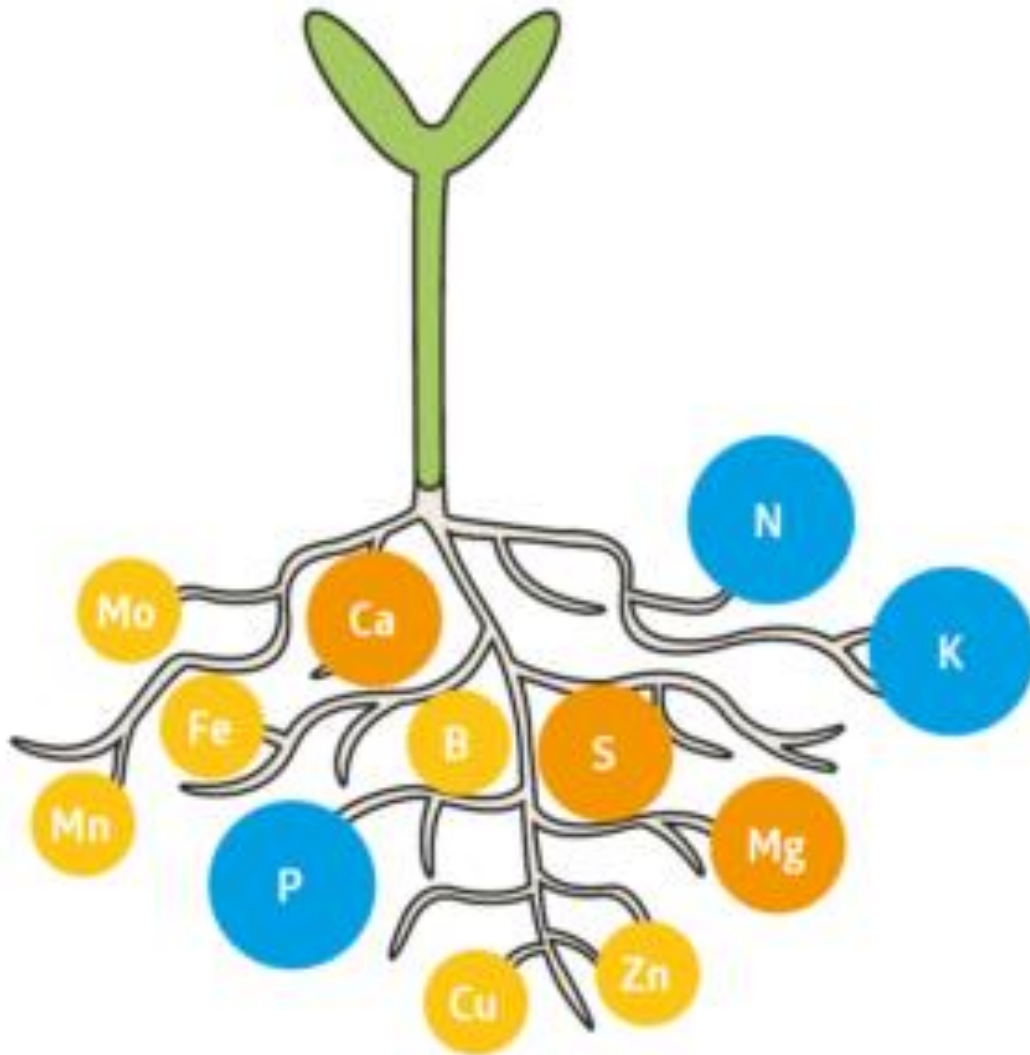
- It would be great if the sample of the book was compared with the real version on a map with a timeline.

Field of study: Science (Food, Agricultural, & Environmental Sciences)

Integration of in vitro & in planta approaches for high-throughput identification of phosphorous solubilizing bacteria from greenhouse ornamentals

Juan Quijia Pillajo, PHD in Horticulture and Crop Science

Advisor: Dr. Michelle Jones



Summary

- Floriculture crop production analysis
- Plant growth promoting rhizobacteria
- Tests for PSB (phosphorus solubilizing bacteria)
- Digital phenotyping of biomass
- Goal: to find a consistent bacteria across growing mediums for optimal plant absorption of phosphorus

Research questions

- Phosphorus-solubilizing bacteria (PSB) are commonly used for corn and similar crops. What would be the potential effects if they were used for ornamental plants?
- What is the most consistent bacteria across different growing mediums that optimally enhances plant absorption of phosphorus?

Methodology

They placed all the samples under the same conditions for three days at 30 degrees Celsius and used a method called the Malachite Green method for their research process. Then, they analyzed their data and findings based on these methods:

- The high throughput PSB identification pipeline
- The in-vitro screening assay and selection criteria (14 bacteria selected)
- The in-planta experiment and evaluation parameters
- Reference values of vegetation indices for plants under phosphorus deficiency
- Comparison against the negative control

Result And Critical commentary

Results

- It was found that PSB significantly promoted plant growth, with Lalrise Vita being the most effective treatment.
- The evaluation involved assessing seven parameters, including five vegetation indices, digital biomass, and flower area. Out of these parameters, eight samples were identified that outperformed the control in at least one aspect.
- To determine the best bacteria, treatments were ranked based on the number of parameters in which they outperformed the control. Lalrise Vita emerged as the top-performing treatment, followed by C5C8, B. velezensis, and C4A1, respectively.



Critical commentary

- Does changing the type of flower affect it?
- How much soil does each bacterium need? Perhaps some of them require less or more soil to be more effective?

THE REFLECTION

Mila

- Mila is making a project in a day-to-day reflective practice.
- Human-centered design uses surveys, usability testing, etc. Mila doesn't portray data in her research, rather the project itself is a culmination of her reflective data.
- Mila might diagram virtual affordances for better understanding their mechanism.
- All in all, Mila's presentation was great, very visual and understandable.

THE REFLECTION

Maria

- **Similarities to design:**
 - Many pictures and visuals to clarify and as research itself
 - Visual analysis → thinking through making
 - Trying new tools in search for insights
- **Where design might contribute:**
 - Aspect of time
 - What insights can be gained from time as variable?
 - Maria's representation is very flat, ArcGIS is flat and sometimes seemingly having depth. Design can visualize deep mapping better than ArcGIS can.
 - Maria seemed to use 1-2 tools. We encourage a further exploration of available tools and understanding of their advantages or limitations

THE REFLECTION

Juan

- **Similarities to design:**
 - Pictures and visual to clarify. Results were presented visually.
- **Where design might contribute:**
 - Analyze and question the process. Create new questions for the process. For instance, with soilless substrates (which are manufactured), is there a way to give them a soil-like quality (being a 'living' substrate) to be generative in nutrient absorption for plants. Another instance: why use only one plant (marigold)?
 - In science research: it is very narrow, trying to see the hypothesis to the conclusion. Isolates knowledge - not a bad option for the first stage. Design research is broader, and the outcome is based on feedback from the conjecturing process.

THANK
YOU

Questions?