PORTFOLIO

YICHANG ZHANG
COLUMBIA UNIVERSITY | GSAPP | 2022-2023
Adapting Suburbia to Climate Change

Redefining suburbs with mixed human intervention.

- Instructor: Nino Calvillo
- Seed & Fire distribution for a Collective Lawn Management
  - Location: Charles Street, Jersey City, NJ
  - Team Work with Avrit Patel and Sue Kim
- SUMMER 2022
Preliminary Background Research

Hoboken underwater by 2100; is there hope?

Support the Guardian

The American Obsession with Lawns

History Summary

"Digestive issues can also be treated using horseweed. Traditionally, Native Americans treated dysentery with it, and it has also been found to help ease diarrhea. The plant is considered to have tonic properties, making it useful for treating discomfort from indigestion, food allergies, and irritable gut syndrome."

"Horseweed contains a compound that can irritate one's nose and has been used intentionally by humans to induce sneezing as a means to relieve sinus pressure."

"They used Horseweed for inflammation of the mouth, throat, and ears. Abnormally heavy bleeding during menstrual periods to stop bleeding."
**Dispersing Flowers**

Public Installation based on Seedlinging and Pollen

- Instructor: Bryony Robert
- A new system integrated into the existing network to build a reproductive justice care system
- Location: Mott Street, NYC, NY
  - Building Area: 5000 sq ft
  - Individual Work
- FALL 2022
ShadowAnalysis & Plants Analysis
AquaGenesis

Education Center and Boathouse Design

- Instructor: Gery Bates
- A Sustainable Floating Ecosystem for Accra
- Location: Odaw River, Accra, Ghana
  - Individual Work
  - SPRING 2023
### Phase Analysis and Summary

<table>
<thead>
<tr>
<th>Phase</th>
<th>Timeframe</th>
<th>Components</th>
<th>Activities</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1st year</td>
<td>Educational center - Small garbage/trading boats</td>
<td>Establish center - Boots collect garbage/trade</td>
<td>Boots travel daily along the river</td>
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<tr>
<td>2</td>
<td>2nd year</td>
<td>Certain garbage amount</td>
<td>Connection with recycling factory - Larger boats</td>
<td>Garbage sent to factory - Create floating docks</td>
</tr>
<tr>
<td>3</td>
<td>3rd year</td>
<td>Landfill near Kore Bay region - Larger floating platform</td>
<td>Power boats with VTE - Create platform</td>
<td>Platform docks - travels every six days</td>
</tr>
<tr>
<td>4</td>
<td>4th year</td>
<td>Trading points - Small transportation boats</td>
<td>Form trade / recycling system - Introduce boats</td>
<td></td>
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</tbody>
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### Plastic platform making process

- Recycle a plastic gallon and make sure it is sealed
- Glue those gallon together
- After gluing the gallon together, secure the edges with a wooden board. Also use the rope through the handle part to fix the gallon again.
- Place the tile from the recycle factory on the gallon
- After laying out the tiles, use new board to fix those tiles
- Use the rope to fix the floating platform of each module together

### Plastic platform activities analysis

#### A. Processing

- Garbage collection at the dumping site in the lagoon
- Sorting Plastic Waste
- Cleaning Plastic Waste
- Storage Plastic Waste
- Sending the processed waste to the recycle factory

#### B. Trading & Marketing

- Load the raw materials for making items and the raw plastic tiles on the platform
- Transportation of materials and finished products
- The platform is docked on the shore for trading activities and traded with local ends
- It becomes a space for children’s entertainment when the market stops

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**Phase 1:**
- Construction of educational sites
- Trade and waste collection for small vessels
- Vessel interaction with waste recycling plants
- The emergence of floating platforms

**Phase 2:**
- Design of large ships for educational trade

**Phase 3:**
- Interaction between floating platform and educational base
Bricks making process

1. A mode is proposed that can be assembled with the CINVA RAM machine.
2. With this mold, self-assembling bricks can be made.
3. This brick would not need mortar for the joints, it would also have capabilities for structural reinforcement.
4. It could be organized in different ways and facilitate the construction of a curved wall.
ENvironments ANIMALS TECH

GAME DESIGN

I found the idea of the blue butterfly by brainstorming while doing the final project. The technologies mentioned throughout the class: audio, video, interactive, vr and ar, etc. all gave me new ideas to expand. Many thanks to my friend Xinping Liu for giving me a lot of help to understand the game building process and requirements to make the idea possible. Also the advice pal gave me about the hand tracker was very interesting and I accomplished my goal in a simpler and better expressed way.

AR DESIGN

Plants have “superpowers” for regeneration. Plants’ roots, stems, leaves, and other parts may regenerate themselves when given the correct conditions for growth, making them excellent examples of invasive creatures in the natural world.

We always think of some plants as invasive and some plants as native, and we resist exotic plants. But a long time ago, plants lived together, and if you go back far enough, all plants can be considered invasive.

MAKING WITH EARTH

Living Architecture

Instructions: LOUA BENALON

Location: New York City, NY

Time: 2023.1-2023.5

Team members: Weiwei Wang, Yvonne Fu

Description: Organic soil, Shifted soil, Straw, Alginate, Cellulose, Wheat

Method: 3D printing

Living Architecture aims to redesignate earth-based materials as its design process. Experimenting with intermixing organic and shifted clay allows for various volumetric forms that could host appropriate spatial voids for upcoming growing plants.

Living Architecture aims to: Interlace with soil; create materials on its design process; Experimenting with mixing organic and shifted clay allows for various volumetric forms that could host appropriate spatial voids for upcoming growing plants.

Weiwei Wang, Yichen Zhang, Yvonne Fu