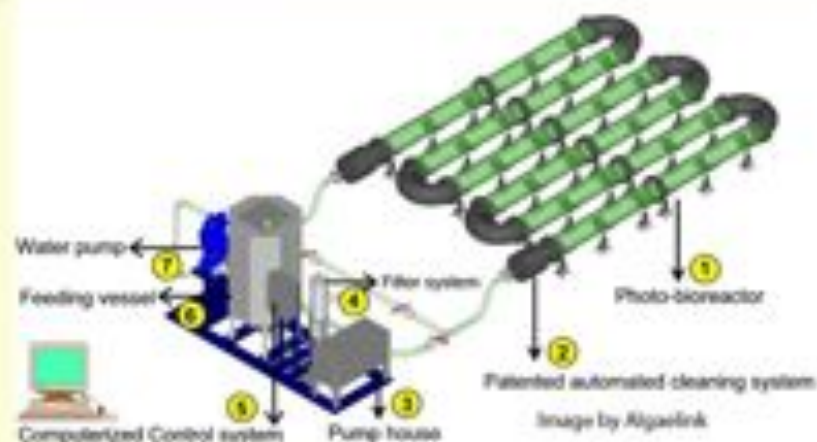


Photobioreactor Water Sculpture

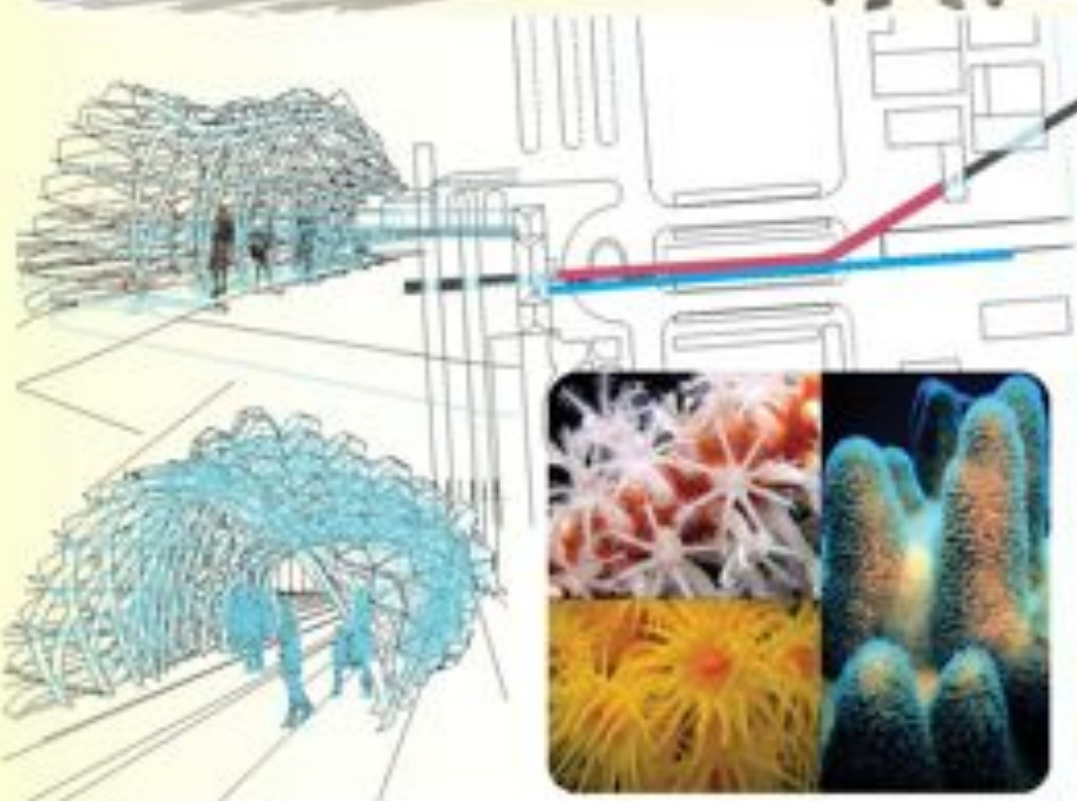


Photobioreactor Water Sculpture

A photobioreactor is a closed or semi-closed system in which light and nutrients are supplied to the system in an attempt to maximize algal biomass. Nutrients can be in the form of pollutants, so the sculpture can facilitate bio-remediation. It can also use CO₂, reducing greenhouse gases. The algae can then be used to generate biofuel. In this proposal the biofuel could be used to run the machinery and vehicles that maintain the park. These photobioreactors are designed in a sculptural manner to add an eye catching feature to the park setting. With the glowing green translucent tubes the work has a similarity to a Data Chubly installation. It consists of an aluminum carriage which has a continuous spiraling tube that cascades from top to bottom. The work could be lighted at night to create a beautiful evening experience powered by a solar array and batteries. The bioreactor towers are attached to a harvesting machine which would extract the algae biomass. Examples of existing technology are shown, as well as a hypothetical installation.



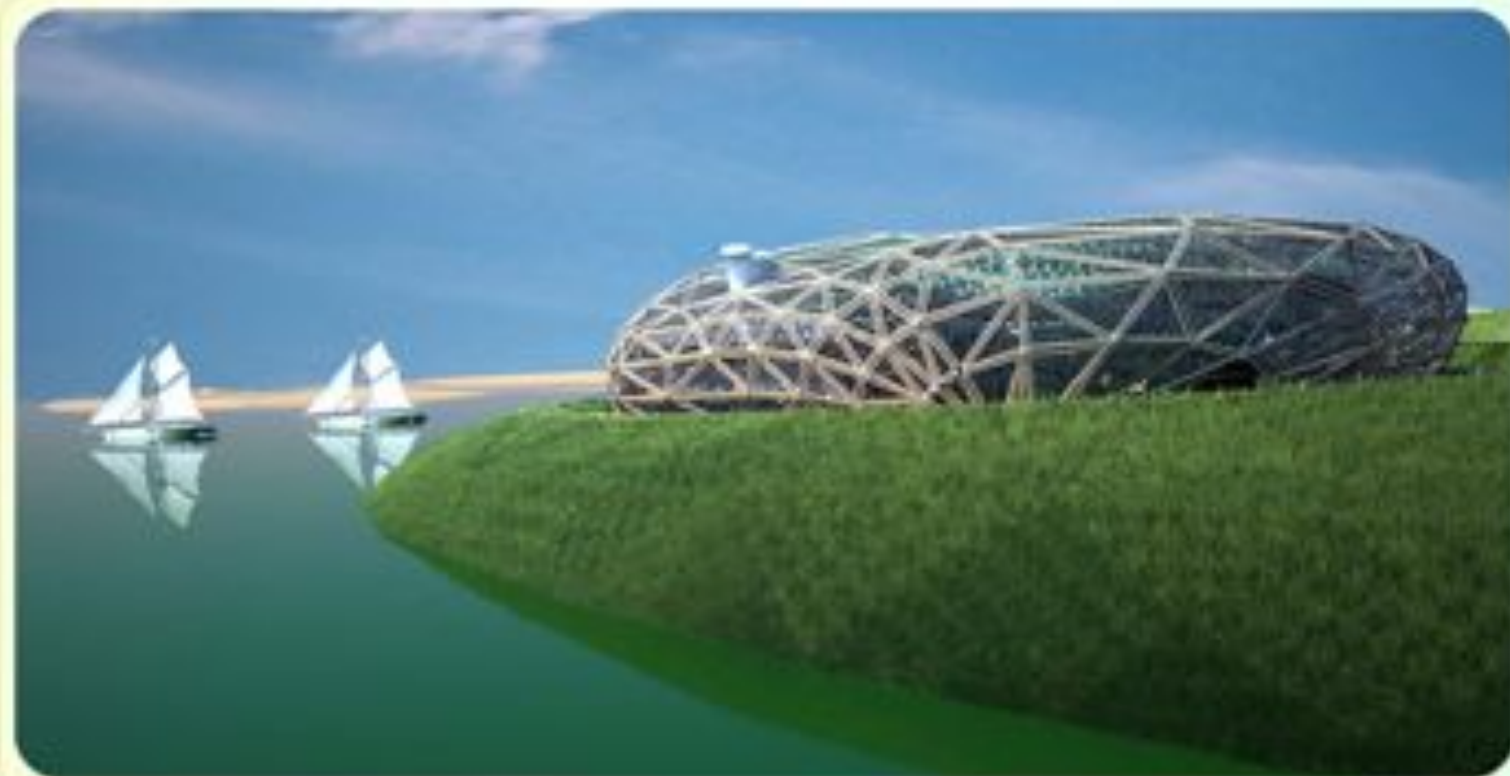
San Jose Public Art Commission - Coloniatchne



Coloniatchne

As a design research group, our central point of inquiry is "design at the intersection of biology and technology". As such, we are interested in the reciprocal effects between technology and human culture, particularly in the way that we use and exchange information. For our commissioned artwork by the city of San Jose we are embracing a project that explores the concept of collaborative self-organization through the lens of bio-inspired design and information technology. In the study of complex biological systems, agent-based self-organization emerges as one of the central mechanisms in their formation. Many biological organisms depend on symbiosis to leverage compatible flows of energy or material for mutual benefit. The core concept for our application is inspired by the self-organization and symbiotic behavior of coral. Coral forms large colonies made from autonomous agents (polyps) that act collectively. Polyps gradually accrete over time, each species shaping its reef through their characteristic individual behavior. We use these patterns to establish an organization of form and interactive technology in the pavilion. Our proposal takes the form of a pavilion on Diridon Green located at the corner where the path of travel from Diridon station branches toward the convention center and downtown. This pavilion is to City of San Jose's downtown corridor to offer all objects that are part of the San Jose outdoor art projects. The pavilion will provide a waiting area for commuters, and a point of interest with interactive light and sound play. The location of the pavilion will draw people from Diridon station toward the other transitability, as the branching shape frames views of the downtown arts and convention center. The shape of the structure will also provide a focal point on Diridon Green, and define space for summer events.

Pacific Coast Interpretive Centers



CENTERS FOR OCEAN HEALTH

The program strives to create a collective learning, living and working environment in the same spirit as many of the species that thrive in our coastal waters. The building is a resource for experimentation and exploration in research that will lead to a healthier coastal environment. The exterior envelope of the buildings will be a consistent geometric prototype that phenotypically responds to the specific wind at each location. The proposed centers highlight new technologies that utilize the ocean as the sustainable source of heating energy, heating and cooling. The proposed interpretive center functions like many sea animals found within the intertidal zone of the Pacific coast, inflating and deflating to respond to environmental conditions. It also features a living system that collects and recycles various forms of greywater and runoff through growing wetlands on the exterior and interior of the buildings. The building level wind flow locally managed coastal forest. Many of the skins and surfaces of the building are made of recycled plastics and products derived from the sea. The building is supported by spread footings and pilings in opposition to traditional concrete slab techniques. Assembly areas are porous material that establishes a connection with the natural earth and allows for sustainable drainage practices. Data networks are organized using the same principles used in successful living networks spanning in the coastal waters. Ideas of redundancy, vertical circulation and various forms of communication and navigation will be present in data networks connected to the interpretive centers.

