THEORETICAL FRAMEWORK

MATERIALITY

CONCRETE CONSTRUCTION
LINEAL WORKFLOW
LOW RESOLUTION

FABRICATION

MAIN ISSUES
- FORMWORK DEPENDENCY
- STANDARIZATION
- GEOMETRICAL CONSTRAINTS

RHEOLOGICAL CONCEPTS
- PASSIVE
- INERT

REINVENT

TECHNOLOGY

[ROBOTIC PRECISION]
ADDITIVE MANUFACTURING
TECHNIQUE

PARAMETERS
- TIME
- PRESSURE [PA]
- MATERIAL VISCOSITY
- MEDIUM TEMPERATURE
- GEOMETRY

NON-GRAVITATIONAL EXTRUSION
GELATIN MEDIUM

CONCRETE
PERFORMANCE

[F.R.C]
NATURAL FIBER REINFORCEMENT
CEMENTITIOUS COMPOSITE

[H.A.B]
HARMFUL ALGAL BLOOMS

BIOMASS

SALT WATER

FRESH WATER

MAIN SP.
- PITHOPHORA
- SPIROGYRA
- CLADOPHORA

FILAMENTOUS ALGAE
&/OR
CYANOBACTERIA

ORGANIC WASTE

FIBER EXTRACTION
COMPOSITE AGGREGATE

ENHANCED BIOFOULING
LITHOPHYTIC GROWTH

PROGRAMMATIC POSSIBILITIES

PROTOTYPING
- COLUMN DESIGN
- FURNITURE DESIGN
- LITHOPHYTIC BRICK

[HYLOZOISM]
ALGAECRETE
MATERIAL SYSTEM

CASE STUDY
NEO-ROMANTIC GARDEN

FIBROUS TECTONICS
- DISSOLVED GEOMETRY
- LOGIC-BASED CONNECTIONS
- ARTICULATED STRUCTURE
- MULTIELEMENT DESIGN

NATURE INSPIRED
PHENOMENA
- FILAMENTS
- HAIR-LIKE
- GROWTH

STATE OF THE ART
- ROBOTIC FOAMING [UI] [2013] MARJAN COLLETTI / REX-LAB
- SOFTKILL [AA] [2012] NICHOLETTE CHAN, GILLES RETSIN, AARON SILVER, SOPHIA HUA TANG
- FILATURES [UCL] [2016] YOU HAN HU, YUAN JIANG, CHENG-HSIANG LIU, XIA CHEN WEI
- SILKWORM PAVILLION [MIT] [2013] MARKUS KAYSER, JARED LAUCKS, JORGE DURO-ROYO,CARLOS GONZALEZ, NERI OXMAN

GEOMETRY

AGENT-BASED DESIGN
PARTICLE SYSTEMS
- COLLISION
- COHESION
- SEPARATION
- FLOCKING