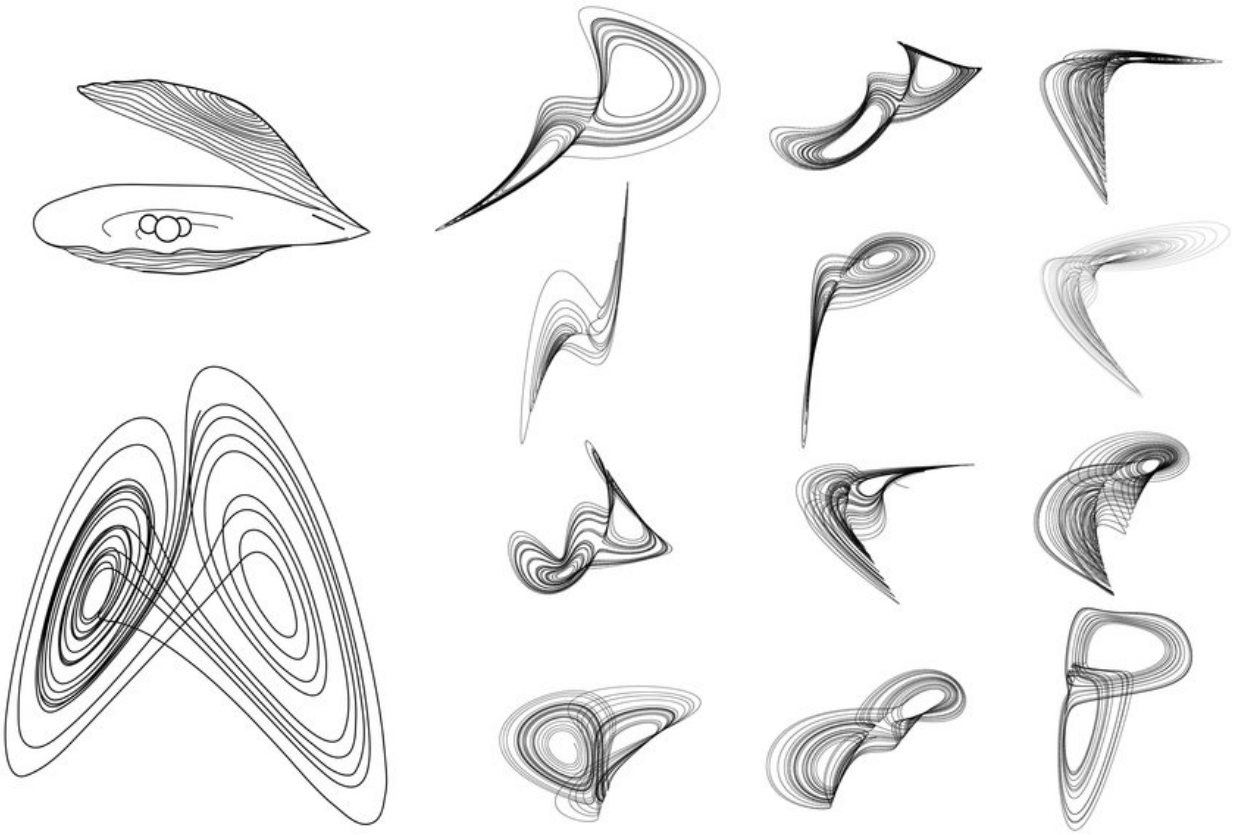
Assignment 01

Parametric Sketching

Course: Arch 565 - Advanced Computer Applications II
Due Date: Thursday, October 02
Weight: 25% of final grade

Overview

This assignment challenges you to investigate parametric systems, either found in nature or conceived by your own design, and to explore how they can be better understood through iterative sketching. By compressing and extending time constraints, you will test how your understanding, intuition, and representation of a system evolves when the sketching process is forced into different temporal frames.



Triangulated Shell Foam Structures Based On Robotic Hot-Wire-Cutting. A Design, Geometry Rationalisation and Fabrication Workflow.

Objectives

- Identify and define parameters that govern natural or invented systems.
- Translate parametric logic into sketches at varying scales and levels of abstraction.
- Compare how perception and intuition shift when sketching time is altered.

Assignment Tasks

1. **Choose a Parametric System:**
    - Select a system observed in nature (e.g., branching patterns, phyllotaxis, cellular structures, waveforms) or propose your own parametric construct (e.g., rule-based geometries, algorithmic transformations, generative logics).
    - Clearly define the parameters driving the system (such as angle, proportion, repetition, scaling, density, etc.).
2. **Develop Three Sets of Ideas:**
    - Produce *three distinct explorations* of parametric systems. Each set should represent a different logic or approach. Within each set, explore how the system adapts, repeats, or transforms.
3. **Sketching Protocol:**
    - For each of the three sets, complete a series of three sketches:
        - **10-minute sketch**: A careful, detailed exploration of the system.
        - **1-minute sketch**: A rapid capture of essential rules, forms, or dynamics.
        - **5-second sketch**: An immediate gestural impression of the system.
    - In each sketch it should be easy to identify.
        - What the element is (golf ball, ballerina, snake skeleton, etc.).
        - What the parameters or variables are (scale, length, rotation, etc…use a different color pen maybe).
        - An expression of how they are all connected (flow, lattice, gravity, etc.).

Deliverables

- A total of **nine sketches** (3 sets × 3 time intervals each).
- Reflection on the drawings addressing:
    - How the change in time altered your process and perception of the parametric system.
    - What aspects of the system were most resilient across time constraints, and what details collapsed under speed.
    - How this exercise might inform parametric thinking in architectural design practice.
- A single pdf consisting of the scans of your drawings **not to exceed 10mb total** uploaded to the Assignment 01 project file on the class GitHub.

Evaluation Criteria

- Clarity and rigor in defining parameters.
- Range and diversity across the three sets of explorations.
- Quality and legibility of sketches across time constraints.
- Depth of reflection in connecting sketching practice to broader architectural parametric thinking.