# Project Proposal

## *Cellular Fluid*

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# Synopsis

An interactive, ASCII-graphic 2D cellular automata fluid simulator. The simulator will have parallel simulation and concurrent display.

Unlike am implementation using directly the Finite Difference Method, the cellular automata implementation can support more complex behavior. The simulator would at least support fluid propagation through a grid of cells, some of which may be walls.

The graphic display would be in terminal, something like Dwarf Fortress's interface.

# Critical Aspects

**Core Algorithm**

- Stokes equation
- Or if too difficult, a simpler version that looks about right

**Parallization**

- Each cell likely depends on only adjacent cells when updating

**Display and Interaction**

- In concurrent process

# Milestones

1. Implement concurrent display and interaction with stub simulation
2. Implement sequential simulation
3. Parallelize simulation
4. Clean up code