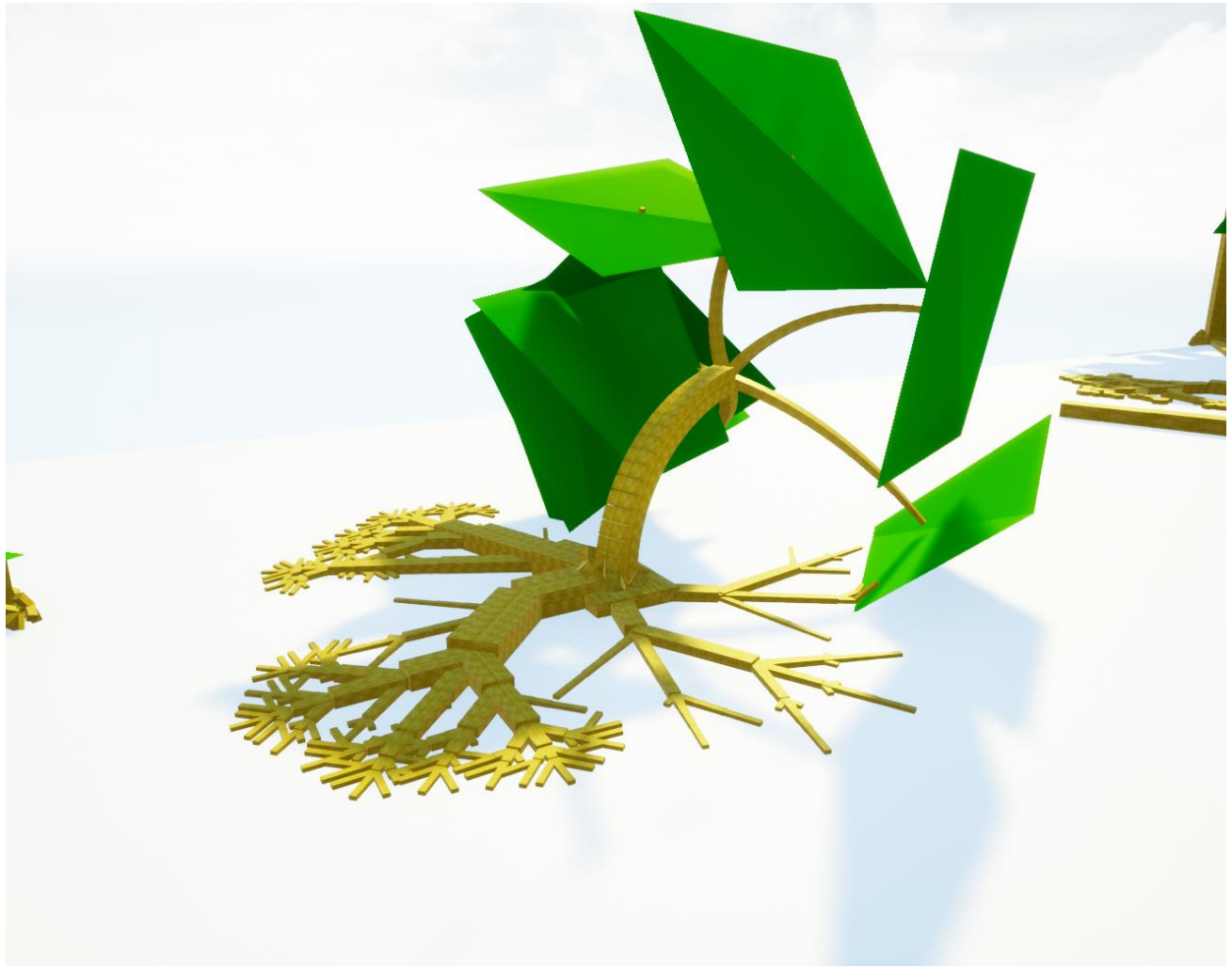
FortPrkt

Unreal Engine

Related Work auch hier behandeln???

Fundamental Ideas

- Plant grow modelled as deception
- Grow works by attachement children
- Etc
- Etc

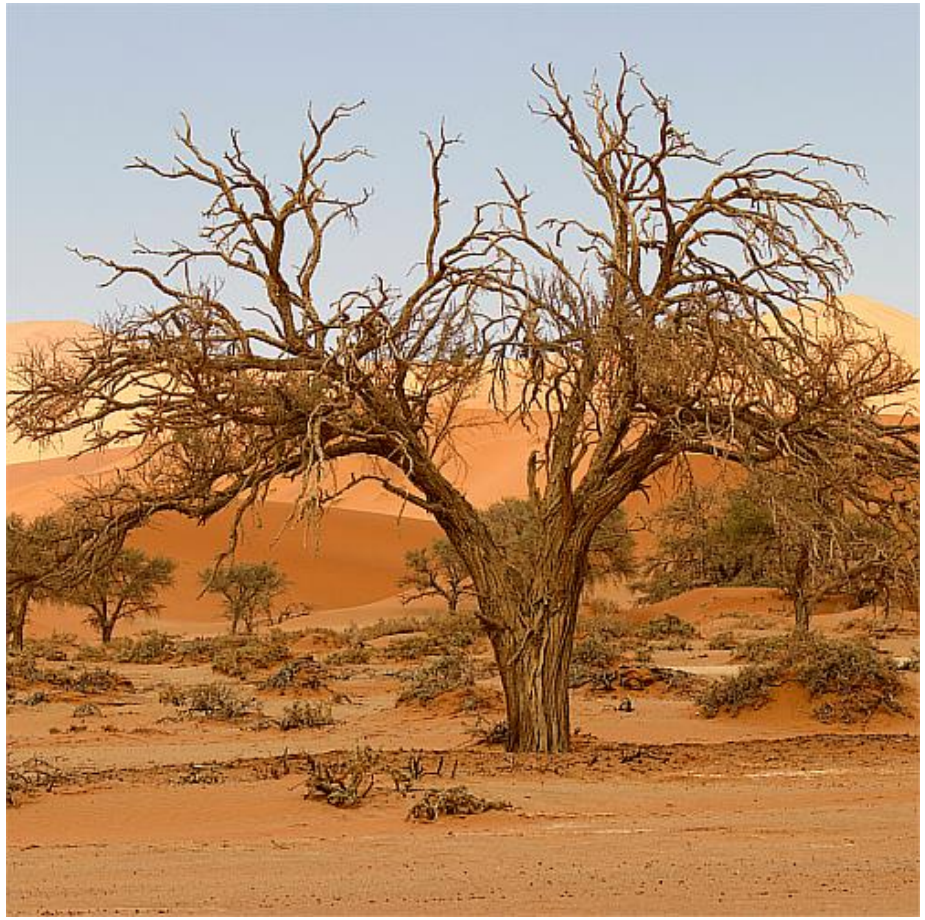


Dog Rose

- Gleichverteilung
- Etc
- Etc

Baumwachstum als Selbstähnlichkeit

- Baumwachstum lässt sich auch so beschreiben



Division Rules

- Vertical division means a “straight” growth into a branch
- Horizontal division means the creation of a branch fork
- For branches growing upwards, *H* are the leaf cells
- In general is $k > k'$ such that plants grow towards
- There are multiple *F* states, such that plants divide faster at the “tip” of the organism

$$K \xrightarrow{\text{time}}, F, H \quad \text{(vertical)}$$

$$F \xrightarrow{\text{time}}, F, F \quad \text{(vertical)}$$

$$H \xrightarrow{\text{light}}, \overbrace{K, \ldots K}^{k} \quad \text{(horizontal)}$$

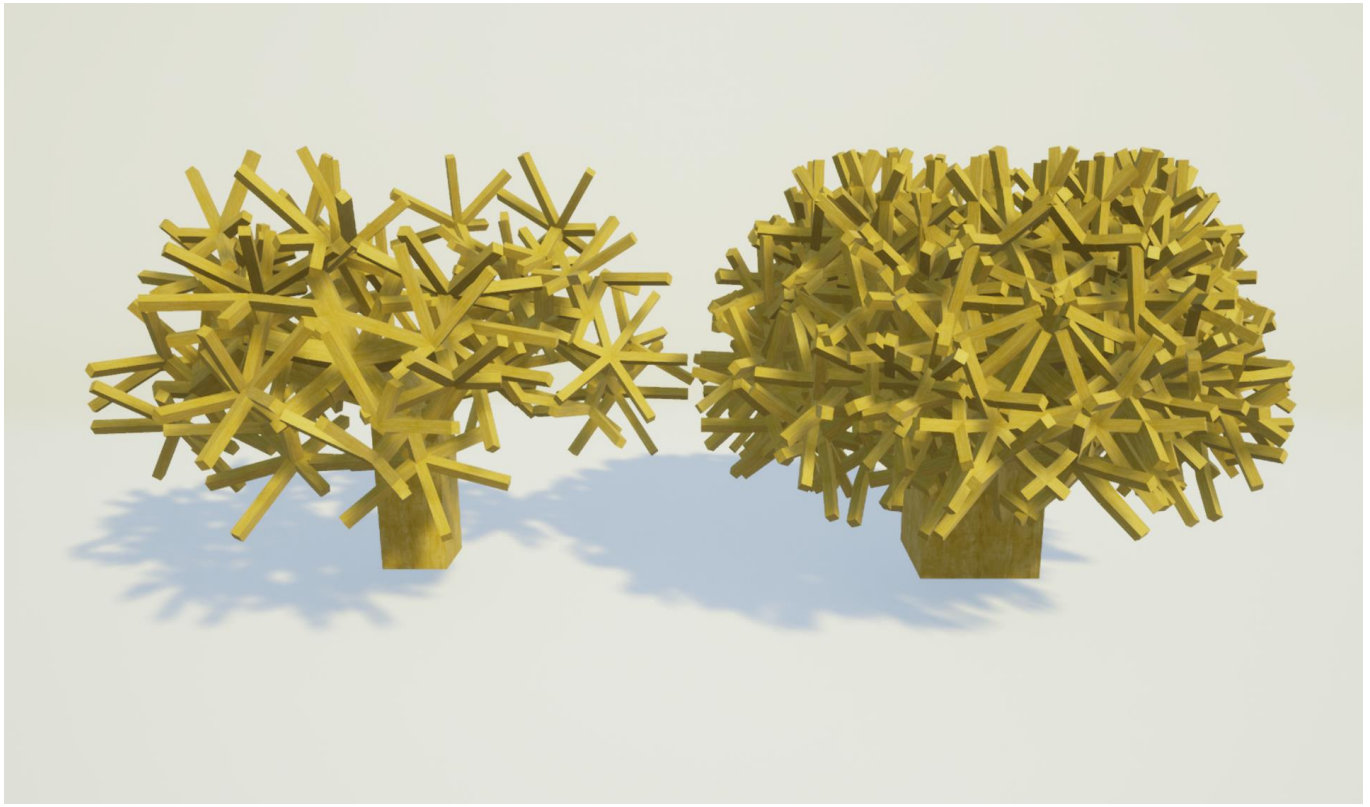
$$H \xrightarrow{\text{time}}, \overbrace{K, \ldots K}^{k'} \quad \text{(horizontal)}$$

Modelled Behaviors

- Plants in water are allowed to have more cells
- Wind destroys parts of plants that get hit by to much wind
- Leafs that get hit by light divide faster and into more children
- The diameter of cells grows when a higher „Weight“ rests on them
- Growth can have a positive or negative correlation with gravity
- Cell division into other cells or environment is forbidden by collision check
- Certain cells (i.e. the roots) grow along the floor, or up walls

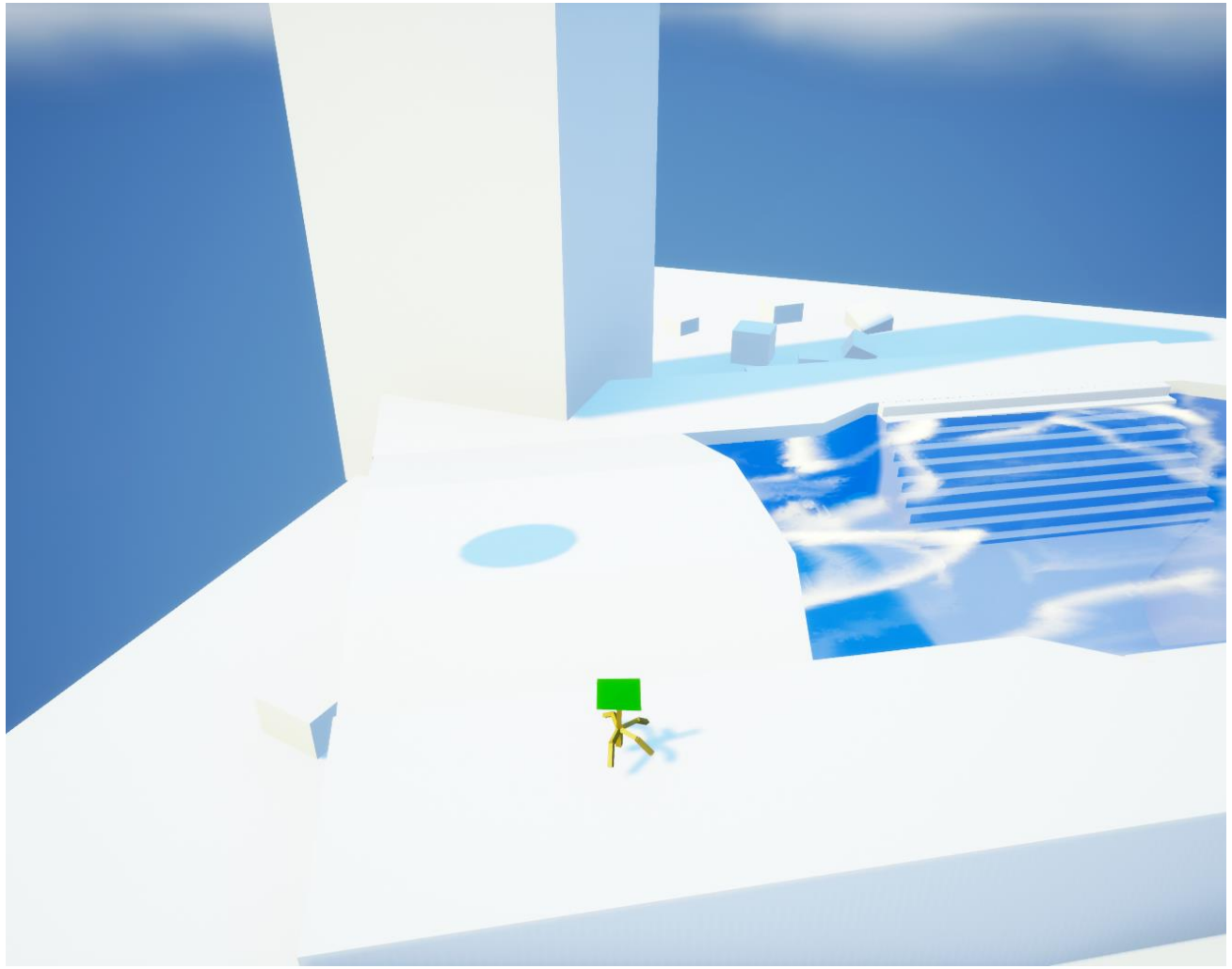
Self-Collision

- Left: self-collision disabled; Right: Self-collision disabled



Plant Grow Example

- 5 Iterations

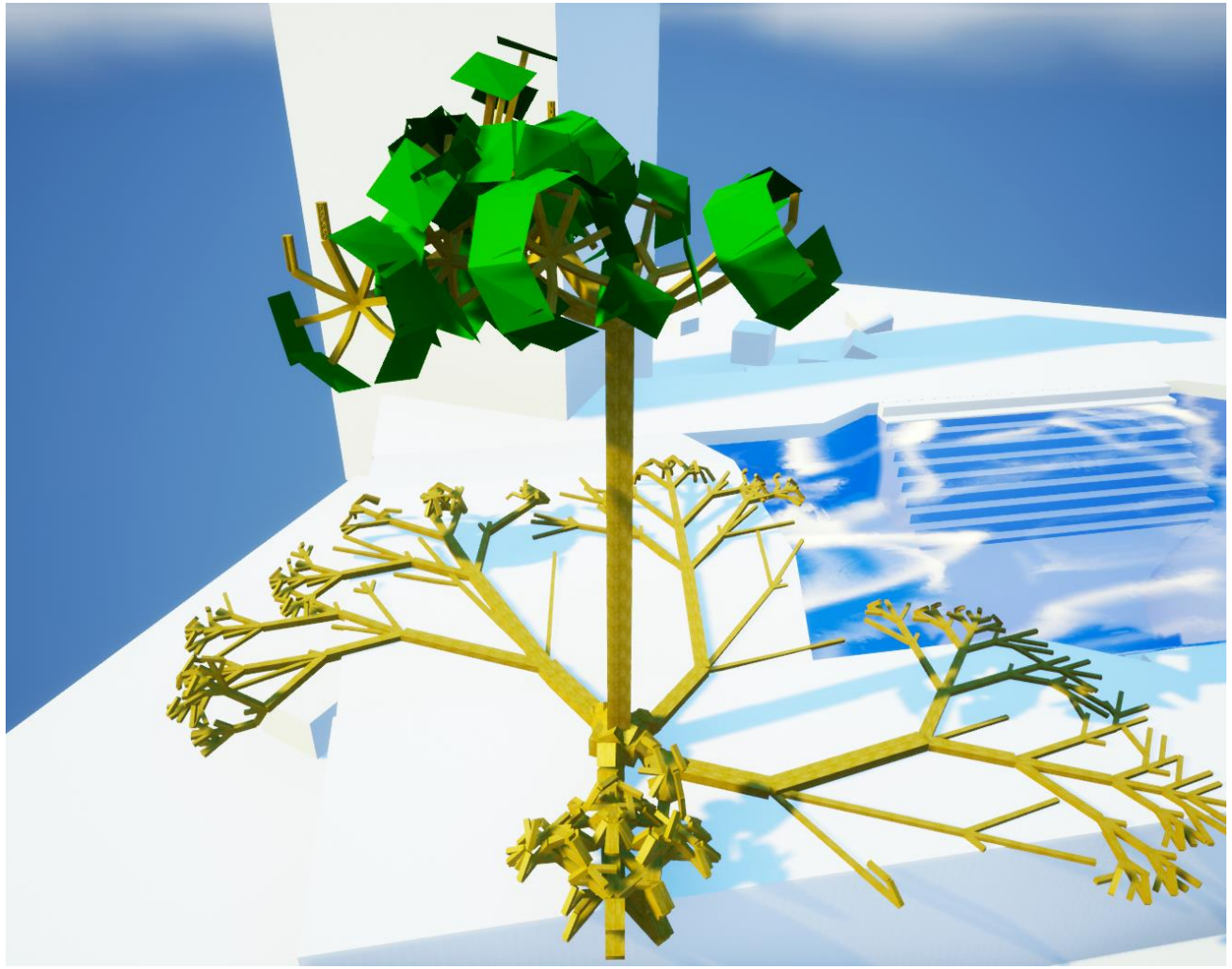


Plant Grow Example

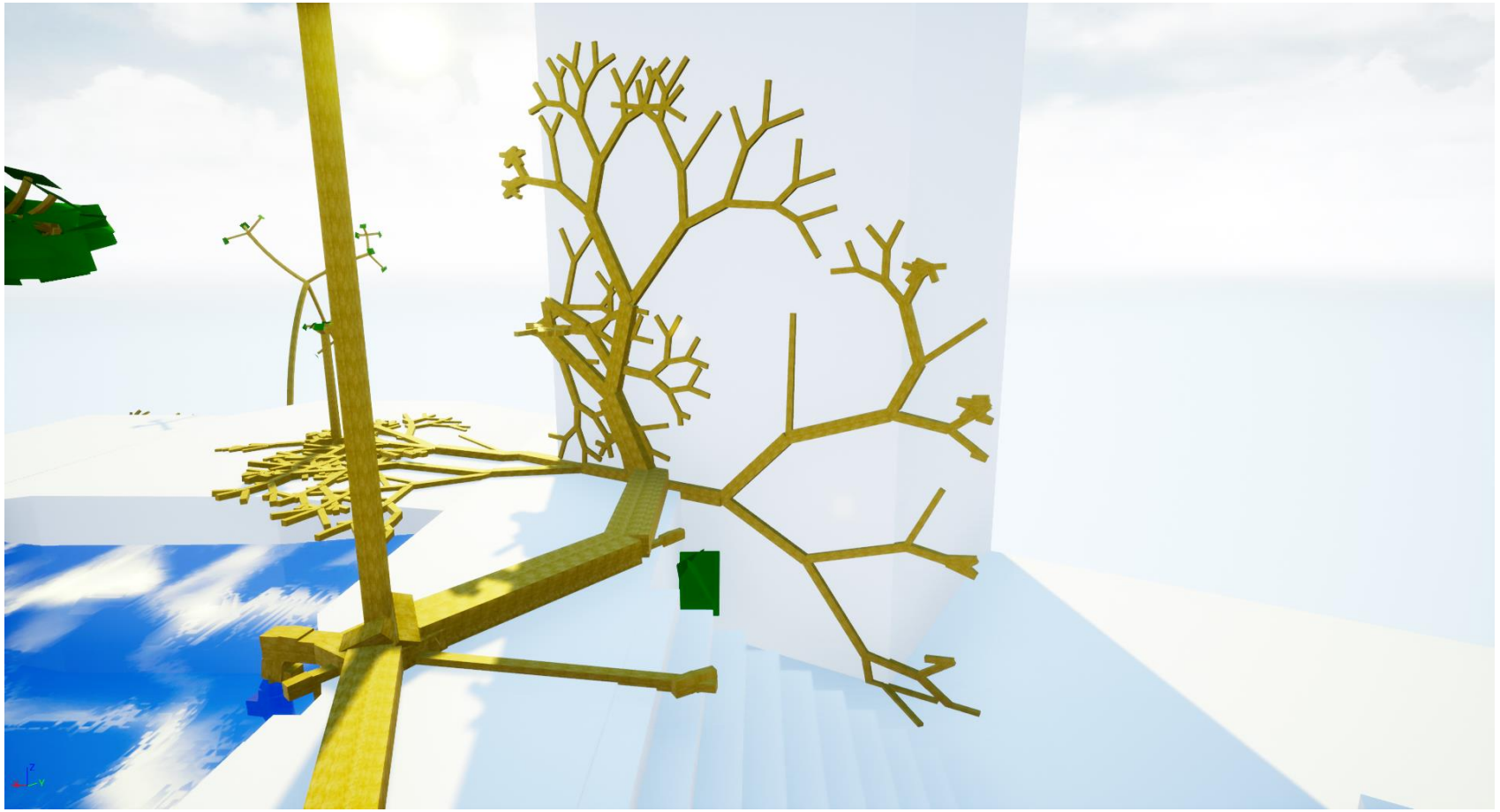
- 20 Iterations

Plant Grow Example

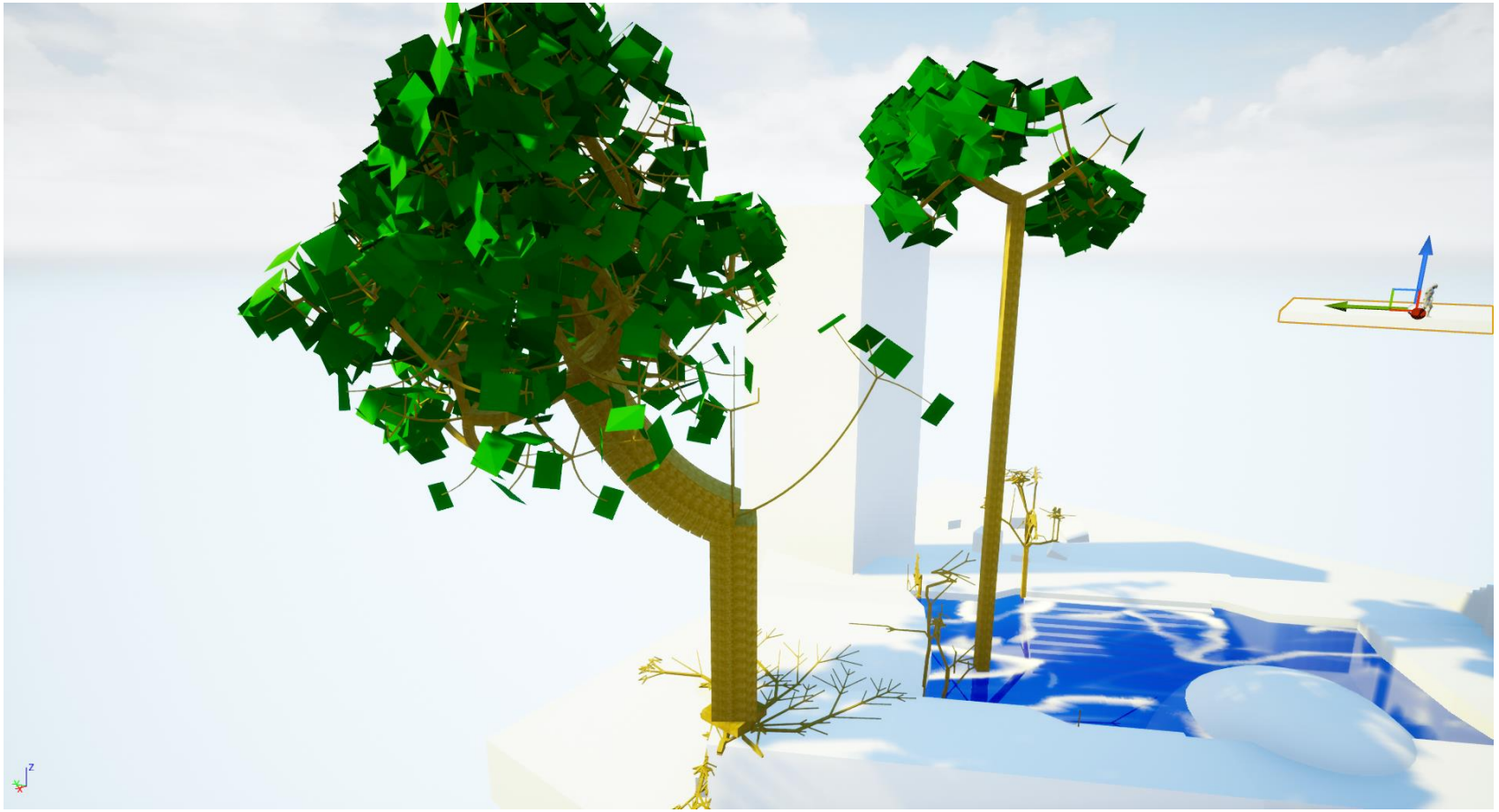
- 35 Iterations



Growing Up Wall



Grow to Light



Controls

- WASD/mouse : movement
- Space Jump / Fly
- etc

Performance

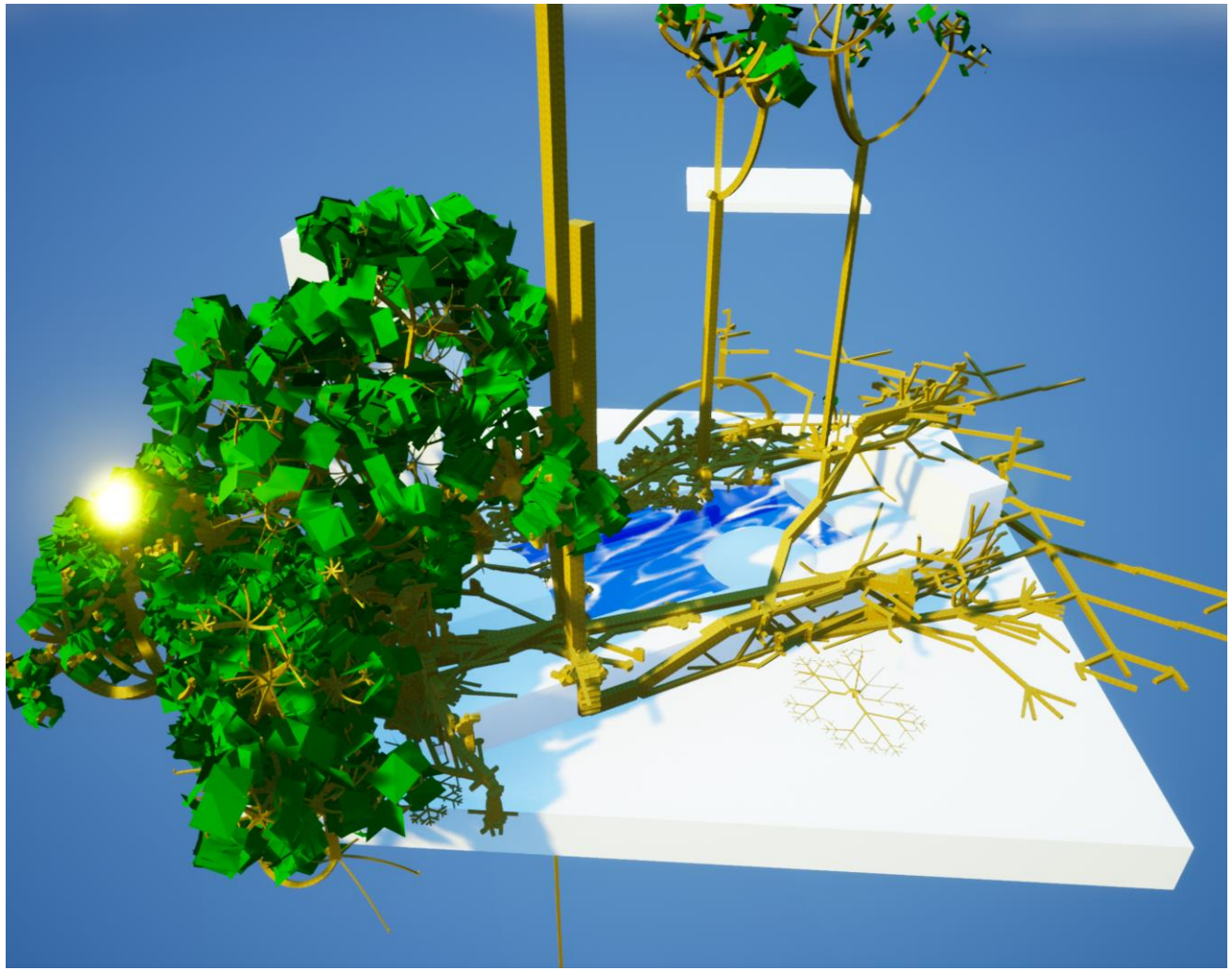
- Tabelle

Growth down

Roots Growing Down An Edge

- Asdfasdf
- Asdf
- Asdf
- Asdf
- Asdf
- asdf
- asdf

Results



Results