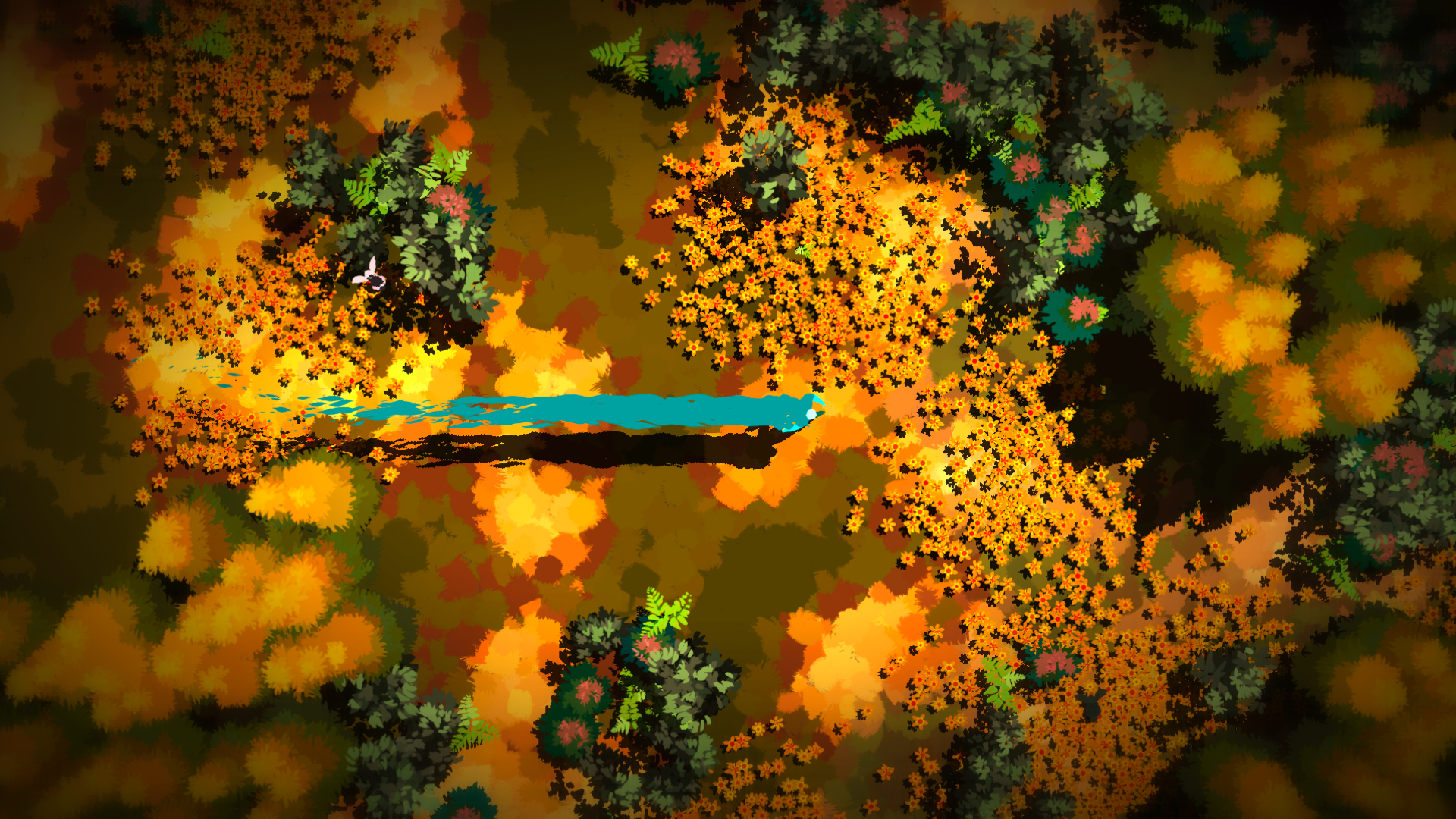
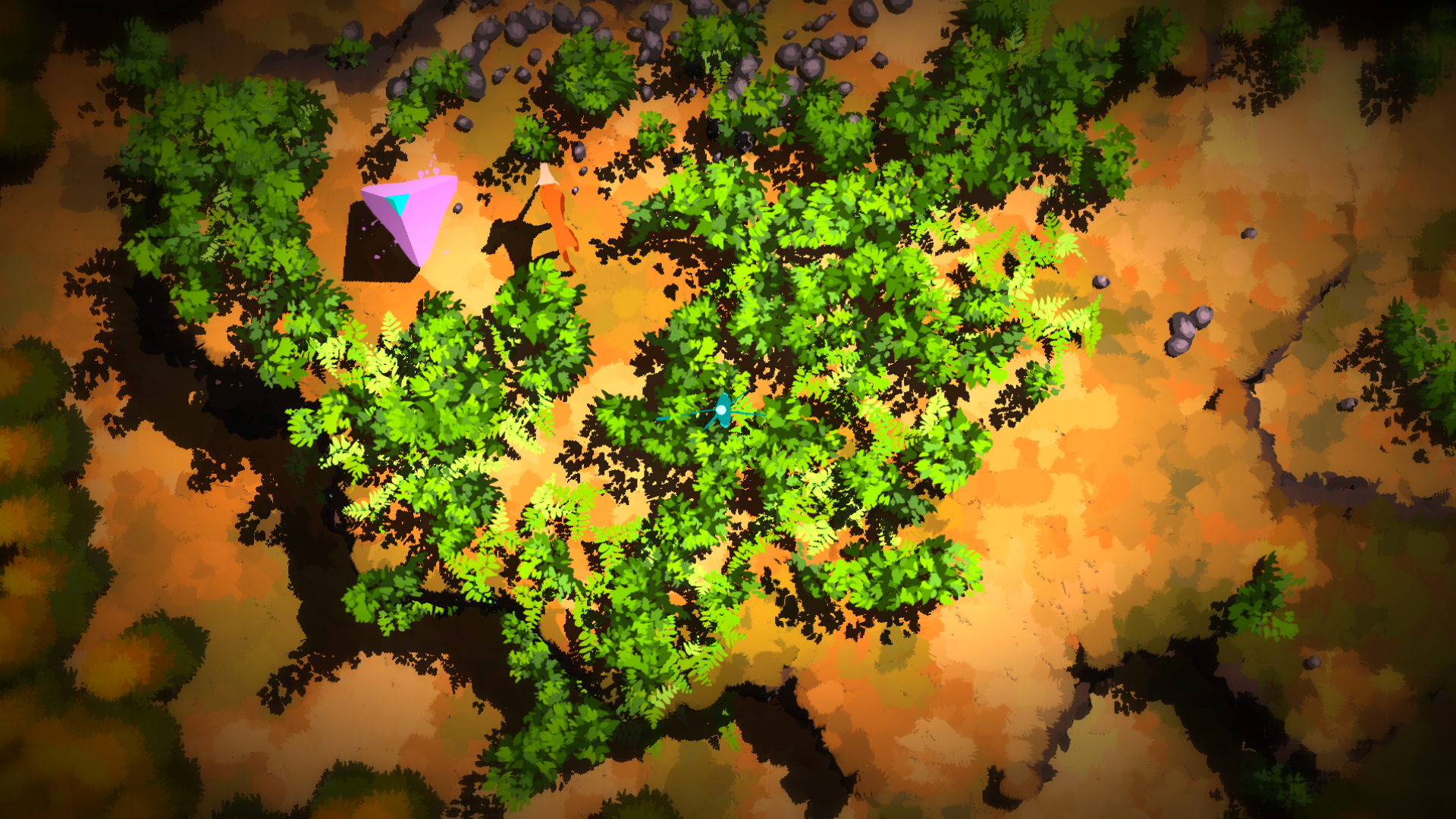
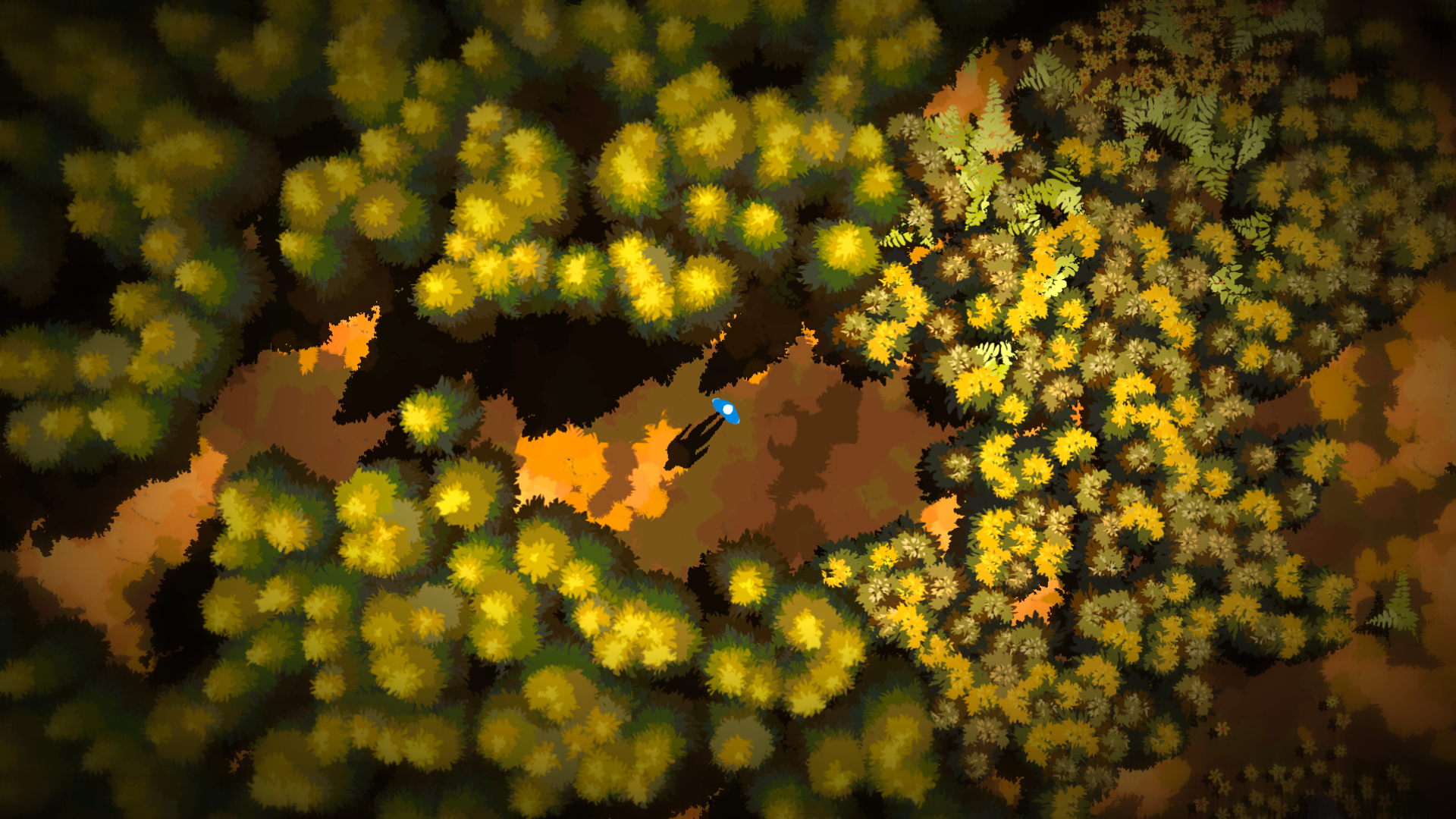
Shadow generation

Mattias Ljungström
Co-Founder, Spaces of Play

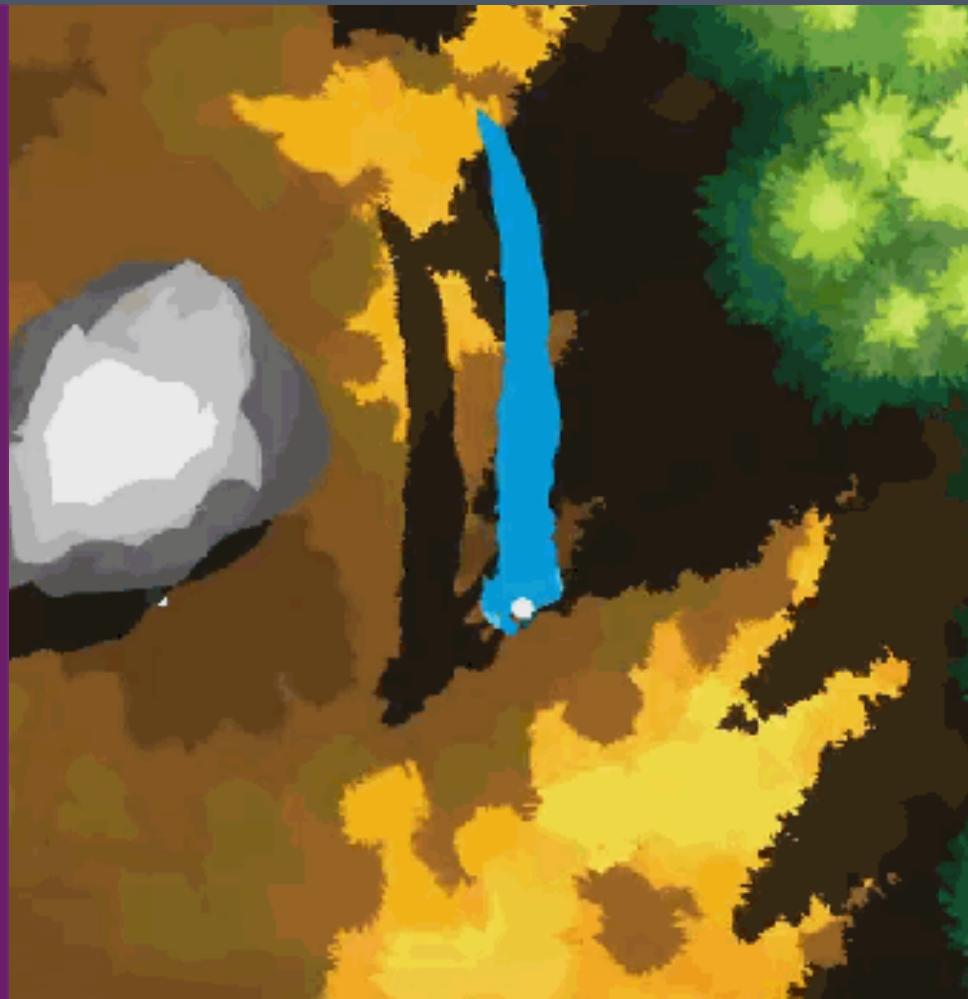
Future Unfolding

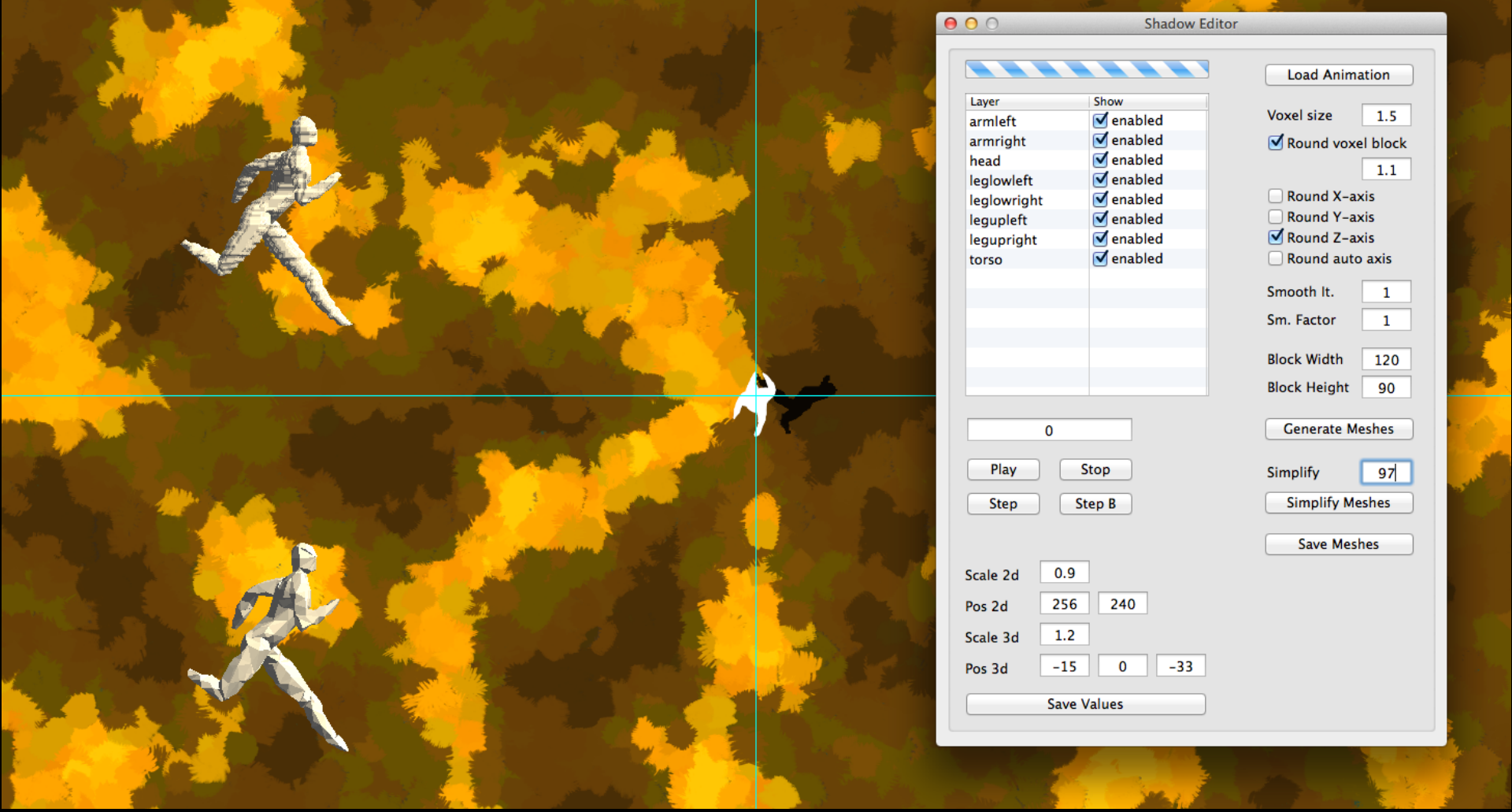




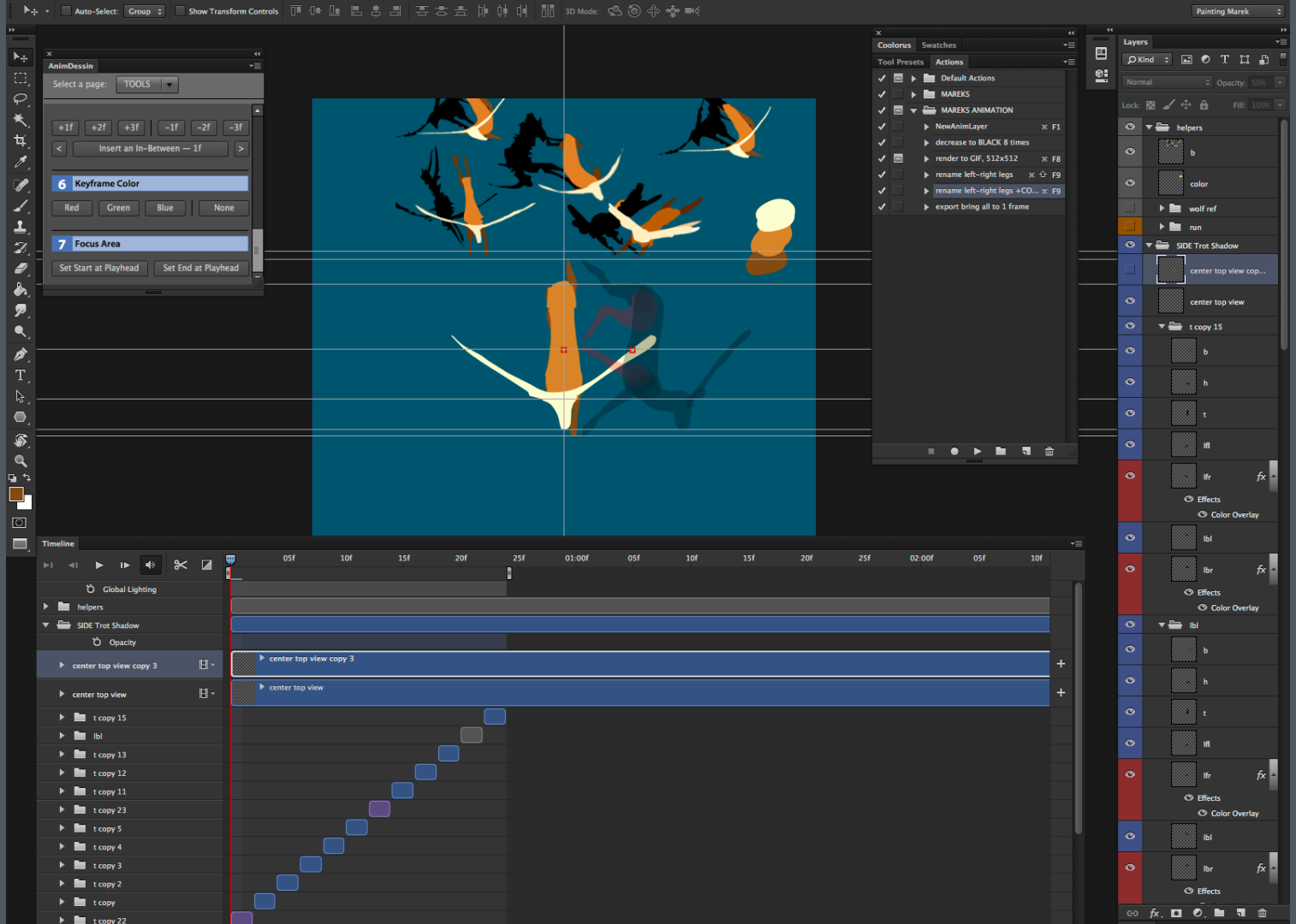


How we convert 2D animations into dynamic 3D shadows




Shadow Editor
Load Animation
Layer
Show
armleft
armright
head
leglowleft
leglowright
legupleft
legupright
torso
enabled
Voxel size
1.5
Round voxel block
1.1
Round X-axis
Round Y-axis
Round Z-axis
Round auto axis
Smooth It.
1
Sm. Factor
1
Block Width
120
Block Height
90
0
Generate Meshes
Play
Stop
Simplify
97
Step
Step B
Simplify Meshes
Save Meshes
Scale 2d
0.9
Pos 2d
256
240
Scale 3d
1.2
Pos 3d
-15
0
-33
Save Values

2D art assets


AnimDessin
Select a page:
TOOLS
+1f
+2f
+3f
-1f
-2f
-3f
Insert an In-Between — 1f
6 Keyframe Color
Red
Green
Blue
None
7 Focus Area
Set Start at Playhead
Set End at Playhead
Coolorus
Swatches
Tool Presets
Actions
Default Actions
MAREKS
MAREKS ANIMATION
NewAnimLayer F1
decrease to BLACK 8 times
render to GIF, 512x512 F8
rename left-right legs F9
rename left-right legs +CO... F9
export bring all to 1 frame
Layers
helpers
b
color
wolf ref
run
SIDE Trot Shadow
center top view cop...
center top view
t copy 15
b
h
t
lfl
lfr
Effects
Color Overlay
lbl
lbr
Timeline
Global Lighting
helpers
SIDE Trot Shadow
Opacity
center top view copy 3
center top view
t copy 15
lbl
t copy 13
t copy 12
t copy 11
t copy 23
t copy 5
t copy 4
t copy 3
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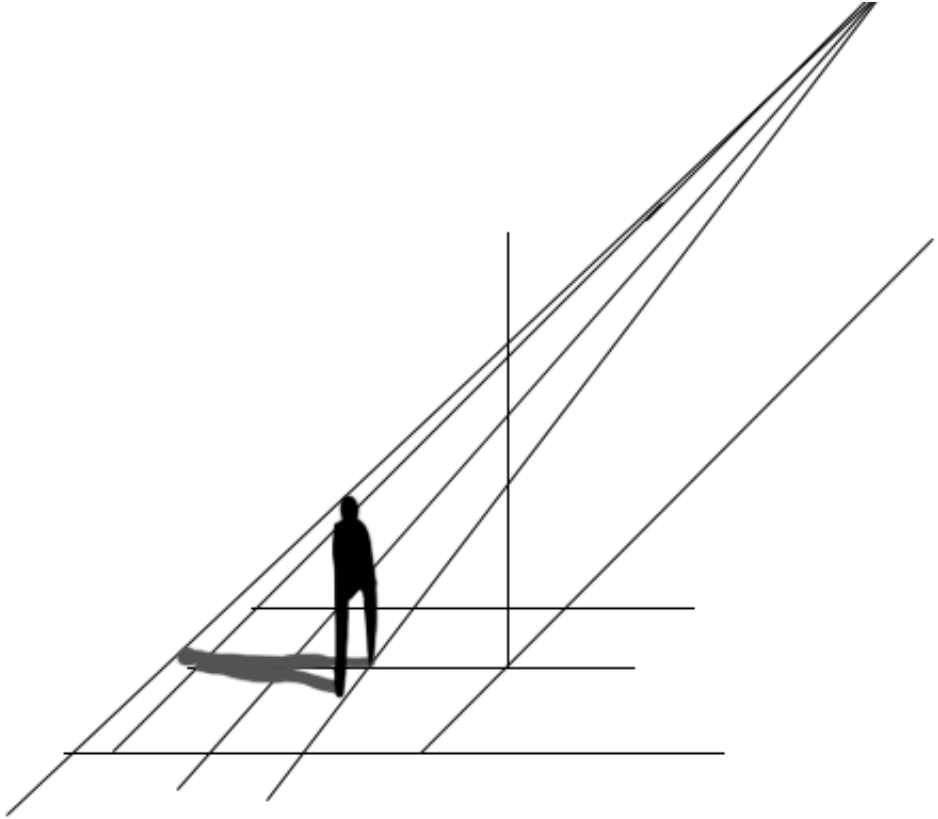
Retain 2D art style in shadow

Early ideas

- 8 animations
- Morph?

Early ideas

- Project 2D plane?



Shadow Art

Niloy J. Mitra
IIT Delhi / KAUST

Mark Pauly
ETH Zurich

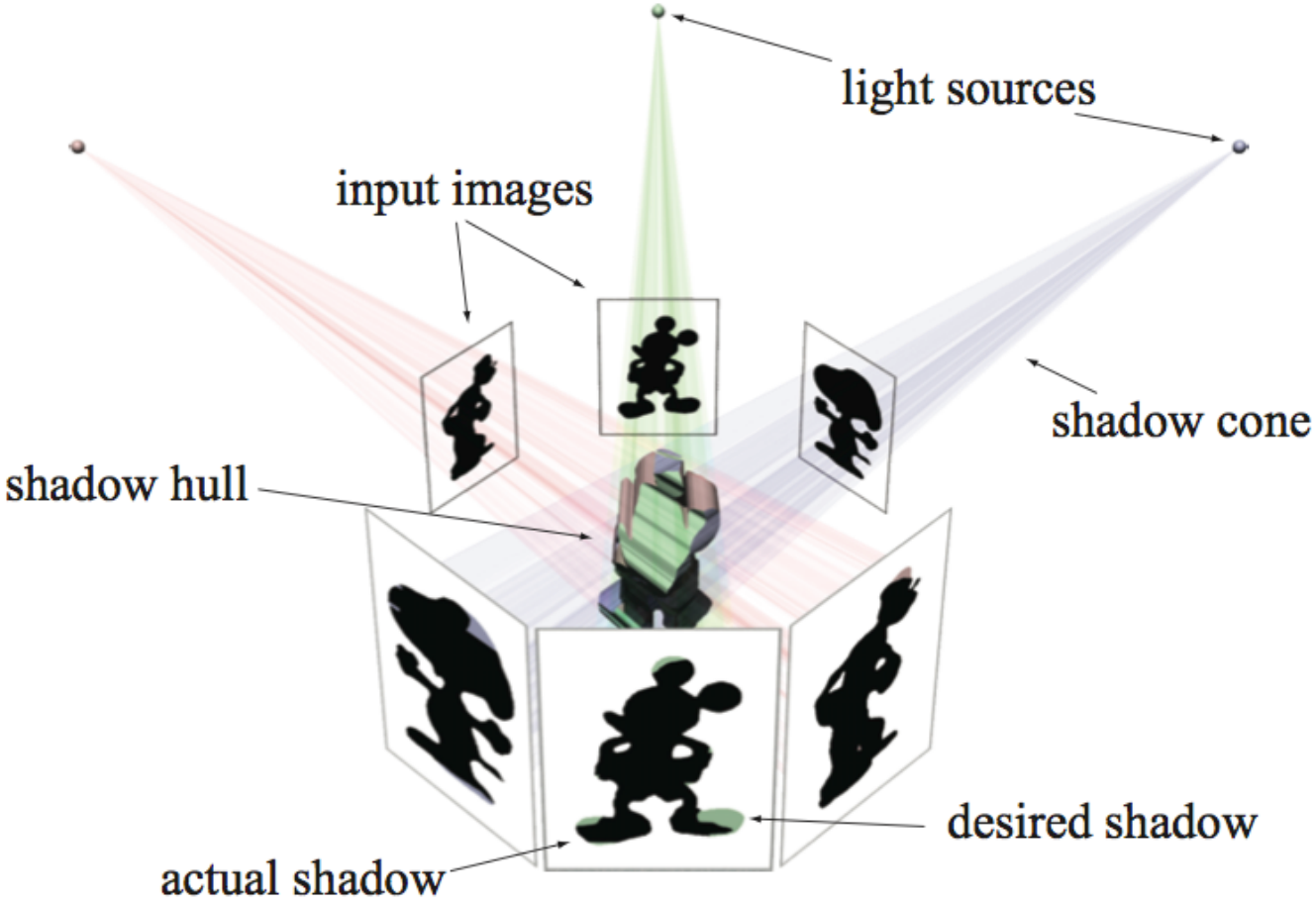
Figure 1: *A 3D shadow art sculpture that simultaneously casts three distinct shadows. The side columns show the desired shadow image provided by the user (left), inconsistencies due to conflicting shadow constraints (middle), and optimized images (gray) that avoid shadow conflicts with the outline of the original for comparison (right).*

Abstract

"To them, I said, the truth would be literally nothing but the shadows of the images." - *Plato, The Republic*

Shadow art is a unique form of sculptural art where the 2D shadows cast by a 3D sculpture are essential for the artistic effect. We introduce computational tools for the creation of shadow art and propose a design process where the user can directly specify the desired shadows by providing a set of binary images and corre-

2D shadows and the fact that many different shapes can cast the same shadow are instrumental in the classical hand shadows and other forms of storytelling such as ancient Chinese shadow puppetry [Ewart 1998].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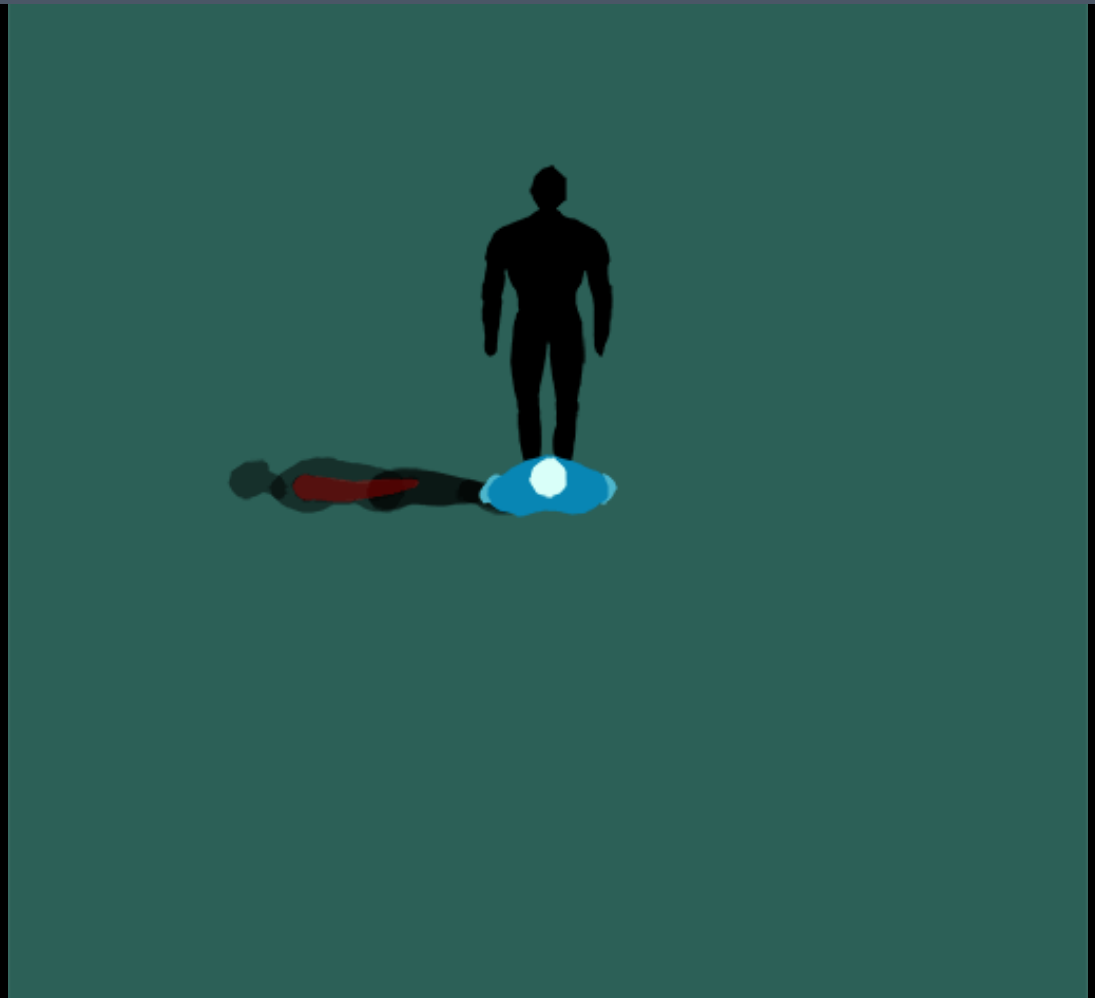
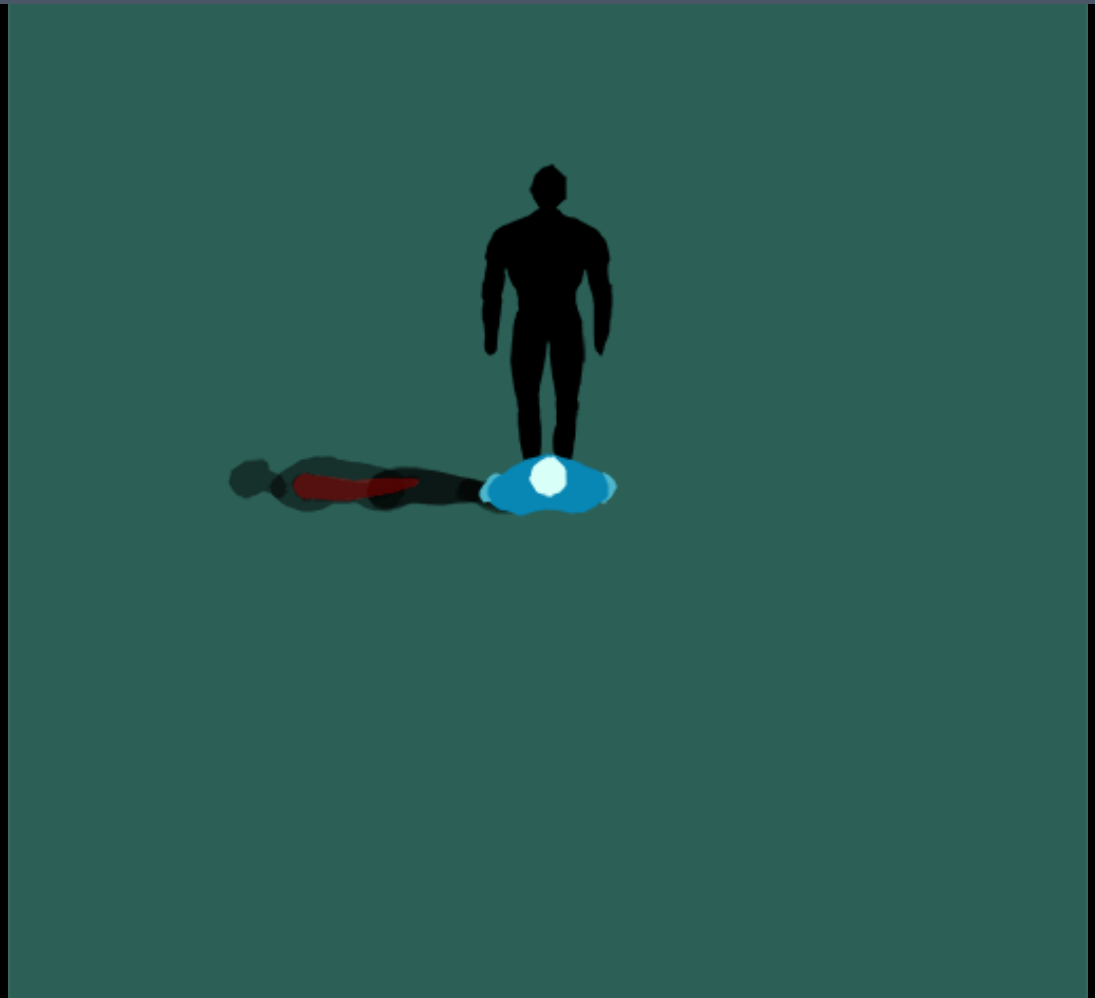
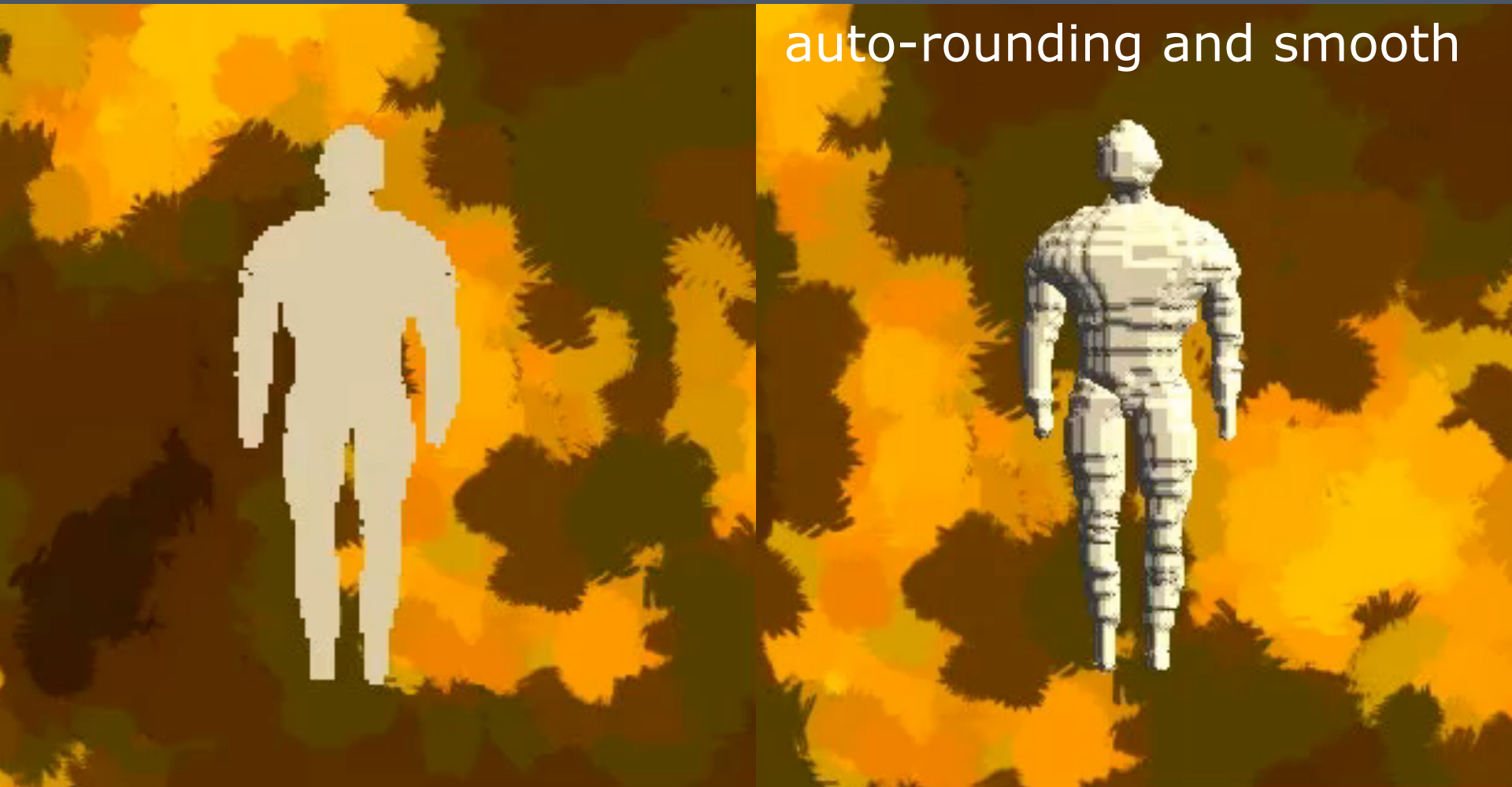
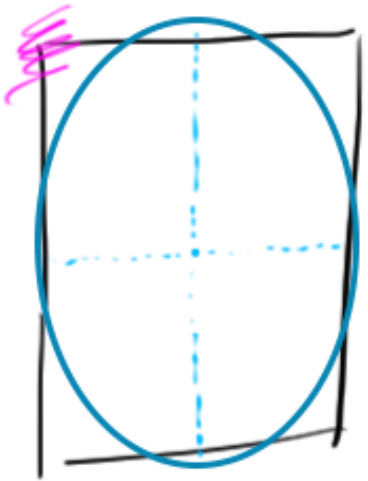
input images
shadow cone
shadow hull
desired shadow
actual shadow

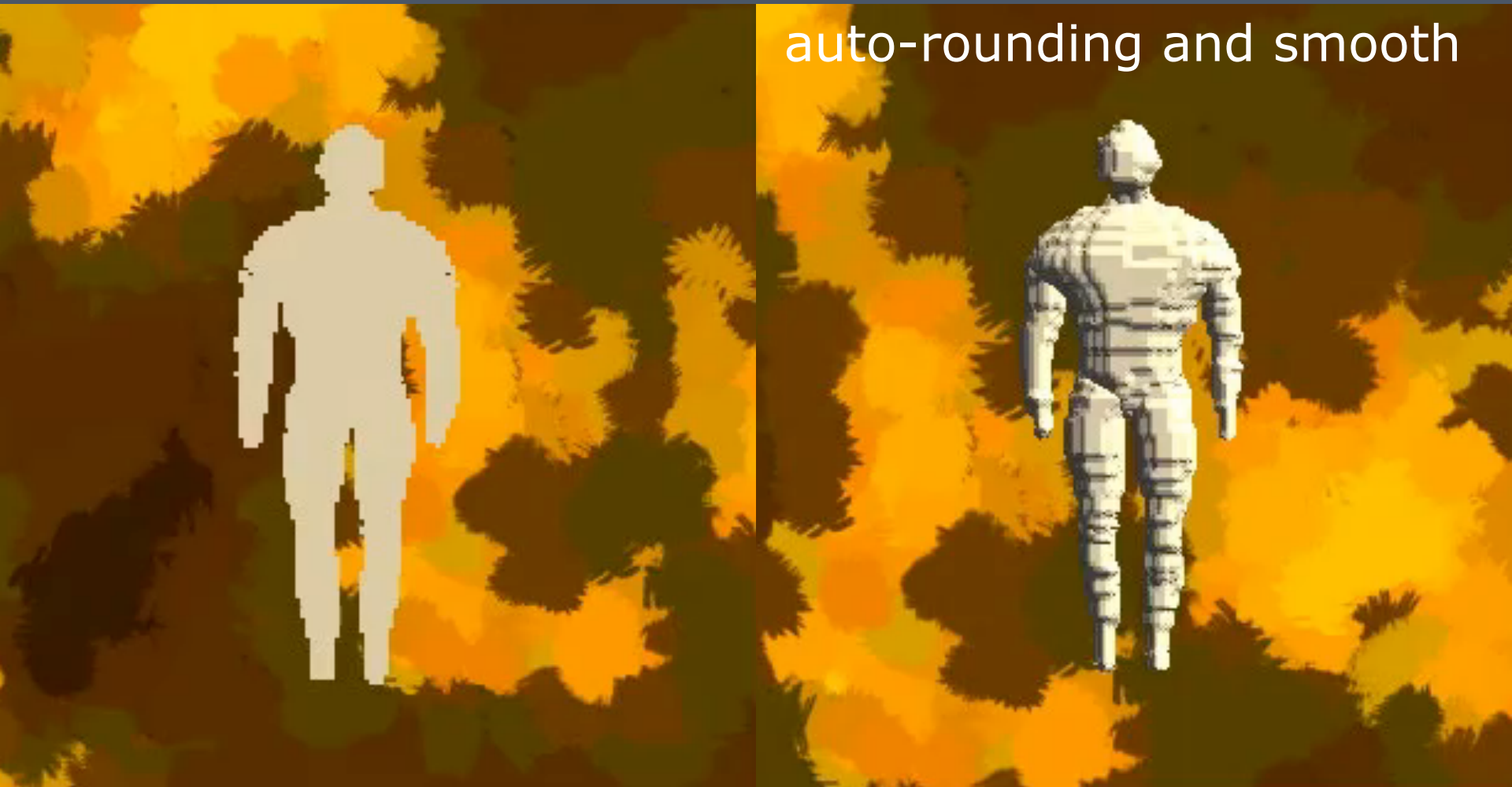




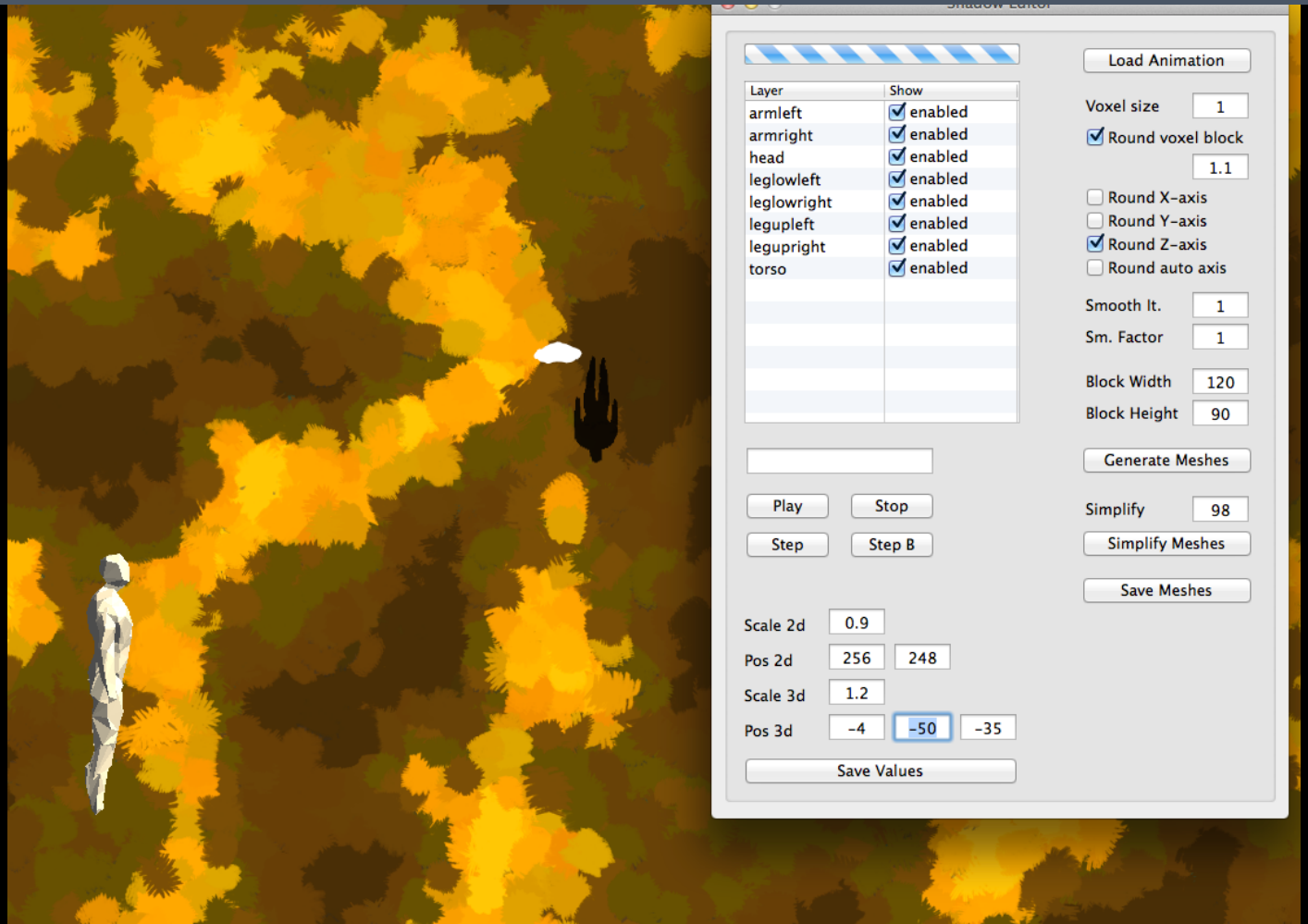

auto-rounding and smooth

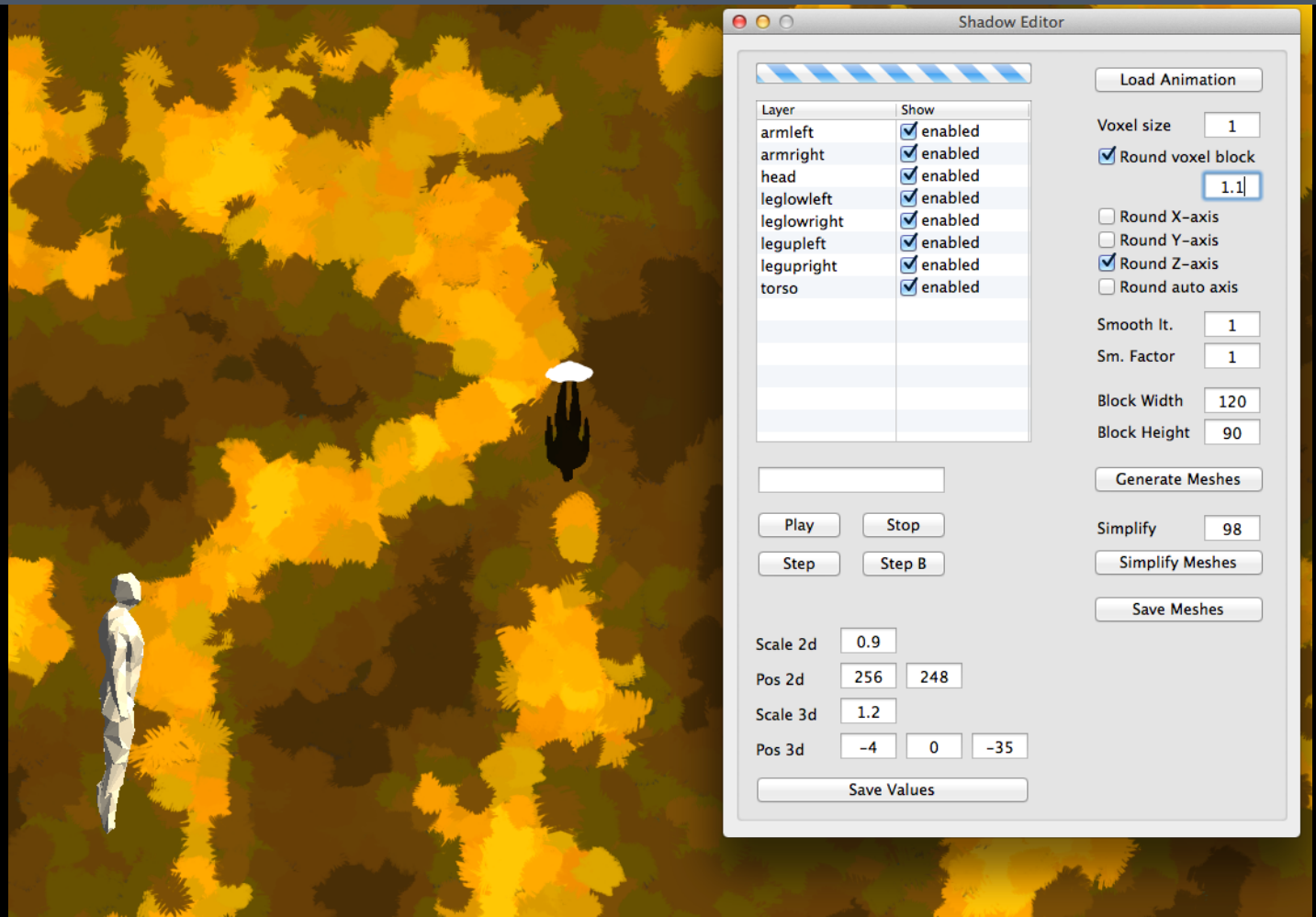
Rounding




auto-rounding and smooth

98% reduction


Load Animation
Layer
Show
armleft enabled
armright enabled
head enabled
leglowleft enabled
leglowright enabled
legupleft enabled
legupright enabled
torso enabled
Voxel size 1
Round voxel block
1.1
Round X-axis
Round Y-axis
Round Z-axis
Round auto axis
Smooth It. 1
Sm. Factor 1
Block Width 120
Block Height 90
Generate Meshes
Play
Stop
Step
Step B
Simplify 98
Simplify Meshes
Save Meshes
Scale 2d 0.9
Pos 2d 256 248
Scale 3d 1.2
Pos 3d -4 -50 -35
Save Values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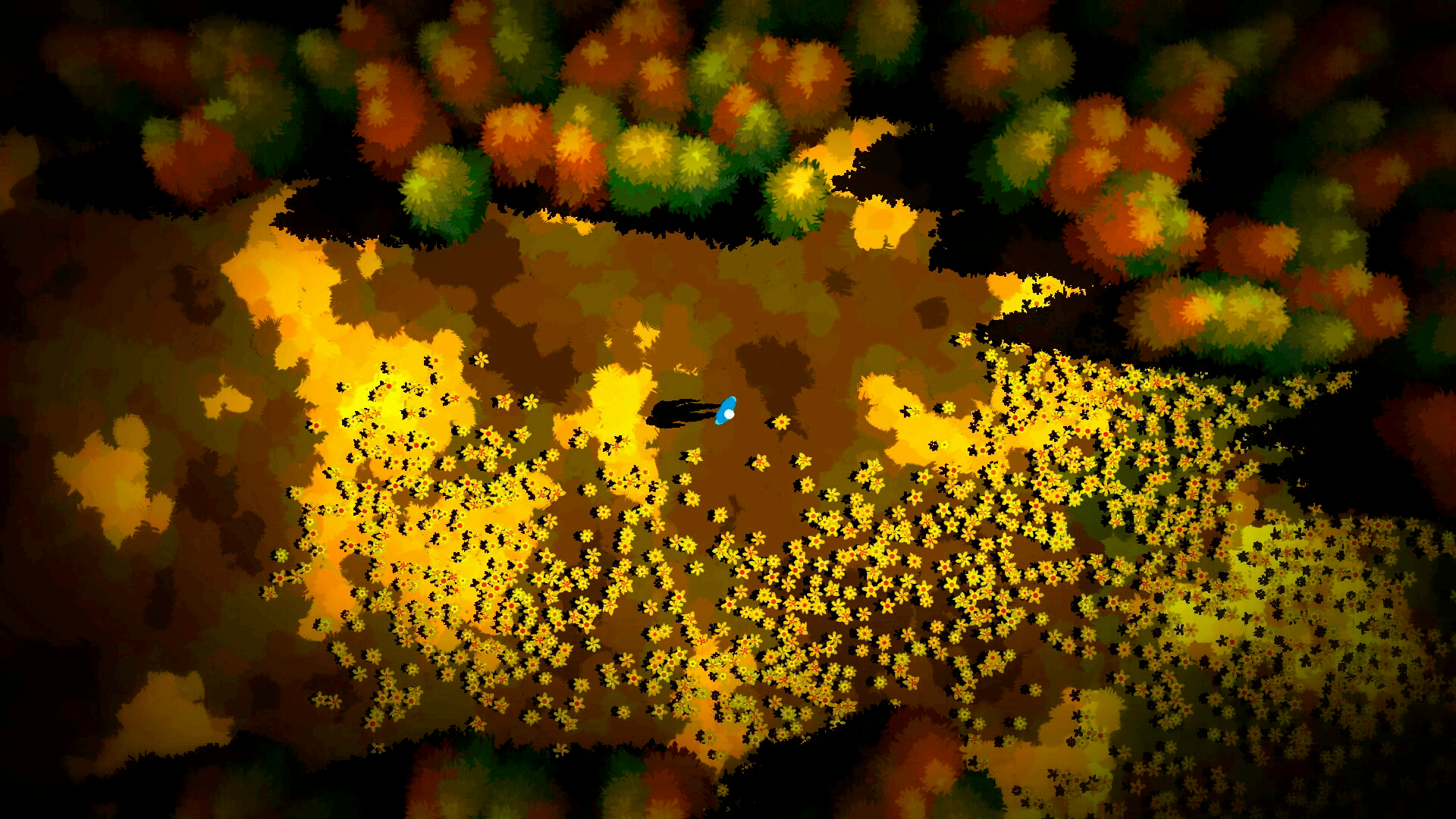

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