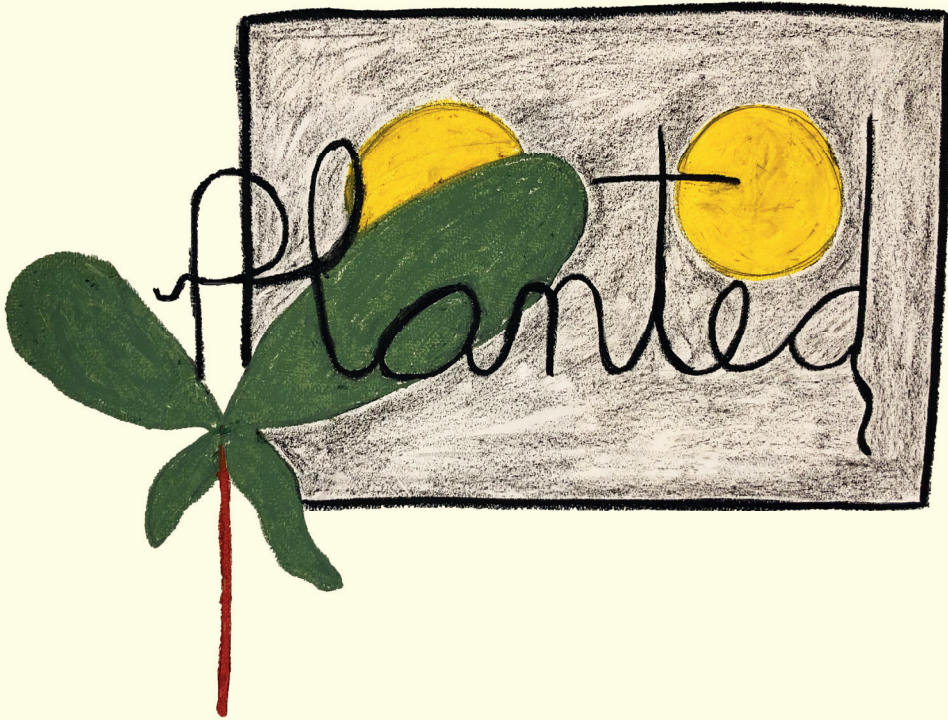


# Rooted

The design and process of  
Planted — A stop-motion short-film about friendship



by **Elliot Keeler**

Prepared?	Shot?	Scene #	Shot #	Description	~Seconds	Music	Set	Notes	
y	y	1	1	Outside of cabin	3	Opening	Outside	Some type of small motion	
y	y		2	Inside of cabin	3		Inside	Some type of small motion	
				Tracking shot from cabin along road to robot and plant walking				Outside	Robot is pulling plant in a red wagon
y	y		3	Robot and plant walking	10		Outside	Robot is pulling plant in a red wagon	
y	y		4	Robot is in backyard meditation with plant (midshot)	3		Outside	They sway together in the wind	
y	y		5	Ball rolls forward on grass (closeup). Bumps against plant. Robot hand picks it up.	3		Outside		
y	y		6	Robot wheeling back away from plant. Throws ball and then wheels to get it again. (Midshot)	10		Outside		
y	y		7	Inside house wheeling around holding plant (midshot)	6		Inside		
y	y		8	Robot sets plant in sunny spot (closeup)	6		Inside		
y	y	9	Robot stands looking at plant (midshot)	12	Silence	Inside	A bit longer than you'd expect		
					56				
y	y	2	1	Robot drives to work (midshot)	3	Transition I	Outside	Music switches to bigger sound	
				Robot is driving. Looks out window				Inside of car	Scene deleted because of too much work for one set
y	y		2	Robot walks down isle to desk, rushing past coworker's cubicle, and coworker pokes head out to see who went by	8	Silence	Work		
			3	Robot sitting at desk (midshot) camera tracks from back of Robot head to the side	3		Work	Longer than expected. Robot is mainly just sitting not working	
				Behind robot head (closeup). Robot turns towards picture of plant. Focus pull to picture of Plant and Robot. Shadow (or a bit of the boss) walks into the frame				Work	Boss isn't in focus when walks into the frame
y	y		4	Behind robot head, but focused on picture of plant. Shadow (or a bit of the boss) walks into the frame.	6		Work		
y	y		5	Boss yelling at Robot for not working. Boss leaves and robot continues to work (midshot)	15		Work		
			Shot with focus on picture of Plant and Robot with boss yelling in the background				Work		
			Robot working (midshot)				Work	Longer than you'd expect	
y	y	6	Robot sitting at lunch (midshot - slow zoom?)	5	Cafeteria				
y	y	7	Robot hands reading book (closeup)	3	Cafeteria				
					43				
y	y	3	1	Robot arriving home in car (midshot)	6	Back to the Woods	Outside		
				Semi-symmetrical shot (midshot) directly behind robot working at workbench. Plant is next to him				Inside	
				Overhead shot of tiny robot the big robot is working on				Inside	
				Closeup of robot putting on the head of the tiny robot. Only the robot's hands are in the frame. Pushes finished robot towards plant.				Inside	Shadow of plant is on the wall?
				Robot picks up and pushes wrist strap button (midshot). Nothing happens. Pushes button again. Nothing. Sighs. Faces plant and beeps				Inside	
				Shot of plant. Silence. (closeup/portrait)				Inside	
				Shot of robot. Beep beep boop (closeup/portrait)				Inside	
				Shot of plant. Silence. (closeup/portrait)				Inside	
				Shot of robot. Beep beep boop (closeup/portrait)				Inside	
				Shot of plant. Silence. (closeup/portrait)				Inside	
				Shot of robot. Beep beep boop (closeup/portrait)				Inside	
				Shot of plant. Silence. (closeup/portrait)				Inside	
				Robot goes back to working (midshot). Arm shoots out to the right showing shaking robot to plant.				Inside	
				Shot of tiny rc robot dancing (closeup)				Inside	
			Puts rc robot down, pats plant, and goes to charging station (bed). (wide shot). Robot beeps and lights turn off. Long shot of robot slumped in the dark. Fade to black.				Inside	At the end only the solar lamp and the robot's eyes are on	
y	y	2	Pats plant, and goes to charging station (bed). (wide shot). Robot beeps and lights turn off. Long shot of robot slumped in the dark. Fade to black.	30	Silence	Inside		At the end only the robot's eyes are on	
					36				
y	y	4	1	Robot is at desk (midshot)	6	Silence	Work		
				Pan down to watch and robot pushes wrist-button				Work	
				Plant is sitting next to rc robot at home and the robot sways back and forth (midshot)				Inside	
				Robot chuckles to itself and gets back to work (midshot) *pause in time (fade?)* turns to clock.				Work	
				Closeup of clock				Work	
y	y	2	Robot at lunch	4	Cafeteria				
y	y	3	Robot gets up and leaves (wide shot)	14	Work				
					24				
y	y	5	1	Robot arrives home in car (wideshot)	8	Transition II	Outside		
y	y		2	Pats plant and places solar panel on table, grabs oil can and quickly wheels away, plant crashes to the ground (midshot)	7	Inside			
y	y		3	Plant smashed on the ground, robot wheel comes into frame (closeup)	2	Inside			
y	y		4	Robot rolls holding plant (midshot)	4	Catastrophe	Inside		
y	y		5	Robot wheels over to "bed" holding the plant while sleeping. Turns light off. Eyes shine into the night. Fade to black	26	Inside	The eyes shining into the night part lasts longer than you think it should		
y	y		6	Plant in Robot's arms (closeup)	3	Inside			
y	y		7	Robot holds plant up and is dismayed to see it's not doing well (midshot) sets plant down and Picks up oil and goes to oil arm, but stops and holds up bottle	26	Inside			
y	y		8	Bottle (closeup) and you can see "Made from plant-based products"	7	Silence	Inside		
y	y		9 (7)	Robot throws bottle down disgusted (midshot)	3	Inside	Shot as 507		
y	y		10	Bottle of oil on floor (closeup)	4	Inside			
y	y		11	Robot pats plant and leaves for work (midshot)	16	Inside			
					106				
y	y	6	1	Robot is sitting at work and notices arm is creaking (midshot) moves arms back and forth. Robot turns to look at picture of Robot and plant	13	Silence	Work		
y	y		2	Picture of robot and plant (closeup)	3		Work		
				Robot pushes rc robot wristwatch button (midshot but different angle from before)				Work	
y	y		3	Robot sitting at lunch but can't focus on book (midshot) robot puts head on table	20		Cafeteria		
y	y		4	Robot back at desk staring at picture. (midshot) Turns to look at clock on the wall	9		Work		
y	y	5	Robot looking at clock (robot out of focus close to the camera). Clock doesn't change but suddenly robot gets up and rushes out	10	Work	Longer than expected when staring at the clock			
					55				
y	y	7	1	Robot enters cabin and goes to plant (midshot)	6	Silence	Inside		
y	y		2	Robot strokes plant (closeup)	4	Inside			
y	y		3	Robot grabs plant and goes to bed (midshot) lights off and eyes shine in the dark. Time passes but instead of fading out robot gets up and goes outside holding plant	45	Digging	Inside	Longer than expected. Grabs shovel on the way out	
				Robot digs hole etc etc (midshot-wideshot)				Outside	Check "script". Shot continues until robot is buried in hole.
				Robot reaches up and pulls chord (closeup-midshot) with robot next to it. Robot pulls chord, eyes fade, long shot of robot and plant sitting in the dark. Fade to black				Outside	Shot is longer than expected.
y	y		5	Robot digs hole, places plant in hole and pulls in dirt. Stands looking at plant. Turns. Rolls away. Fade to Black.	90	Silence	Outside		Shot is longer than expected.
			Plant and robot next to each other. Series of fades as they age. Same as previous shot			Time	Outside	Check script	
y	y	6	Robot is underneath the plant who is now a large tree. The tree is providing shade. The robot reaches hand up and puts on tree.	30	Time	Outside			
					145				
<b>Total</b>		7 scenes	50 shots		465				
					Total Minutes:	7.75	***Greyed out means shot was cut***		

Sets	Name	Description
	Outside	Outside of cabin that extends into the road. The road eventually has a view of the city off in the distance
	Inside	Inside of the Robot's cabin
	Work	Sparse inside of the car. Mainly just a view outside the car's window with a view of the Robot's head - CUT
	Work	Robot's cubicle with a view of other cubicles in the distance. Shows posters and clock on the wall
	Cafeteria	Robot's work cafeteria with a number of tables



1. Bag: An old wallet I used to use and two metal loops. Sewn  
2. Postal box: Cardboard, twine, pen, and fake labels sewn to the side  
3. Mini robot: The head of a lighter, a small metal part from a sewing machine, metal wire from a paper fastener  
4. Robot's "Bed": Sewn cushion, metal L-bracket, bra underwire, various metals

5. Fireplace: Body of a slide-projector, painted tin-foil  
6. Mini-robot from a cut scene of the movie: Robot was going to make a sculpture of themselves that would wiggle when they pushed a button. They would place it by the plant and push the button while at work. - metal from erector set, top of lighter, wire, tree branch, button

7. Lamp: Metal flower, thimble, rusty nail (found on the ground), wire, tree branch, battery (off-screen)  
8. Cracked mirror used in a previous film  
9. Knife: Pencil sharpener blade, wood  
10. Paintings made for the film: Large frames cut to size, board, acrylic  
11. Wagon: Altoids tin, plastic, buttons, wire

12. "Dispenser": Slide holder from slide projector, miniature enamel plate, lighter body, plastic from a camera, marching-band sheet music holder  
13. Shovel: Bent metal, wood, leather  
14. Rug: Hand-woven specifically for film [see next page], yarn, string  
15. Door: Painted & carved wood, nail, glass & plastic

# Planted Theme

Elliot Keeler



1. Various prototypes for the Robot's arms: In order to animate they had to be poseable and hold their position. Wire can be difficult to use because it will occasionally break when bent too many times.
- 2a. The initial plant: Painted fabric and wire
- 2b. The first prototype for sewing the leaves' veins on felt
- 2c. A prototype leaf: Felt cut into a leaf shape and attached to plant branch
- 2d. The final prototype before the screen-used plant
3. A wheel prototype for the robot: Clay. The robot needed to be able to move around with ease, while still maintaining an ease of animation. Unicycling was used as a reference for the motion of the robot throughout the film. A different clay shape was eventually used, placed around metal and wire (for the spokes)
4. Grass prototype for the outdoor set: Threads were cut to length and trapped between wire. Placed side-by-side they would stand upright creating grass made of thread.



Another grass prototype: Thread looped through cross-stitching fabric and cut to size. Eliminated due to the extremely time-consuming nature of it.

The first prototype for treetops in the outdoor set: Made from yarn using a pon-pom maker.





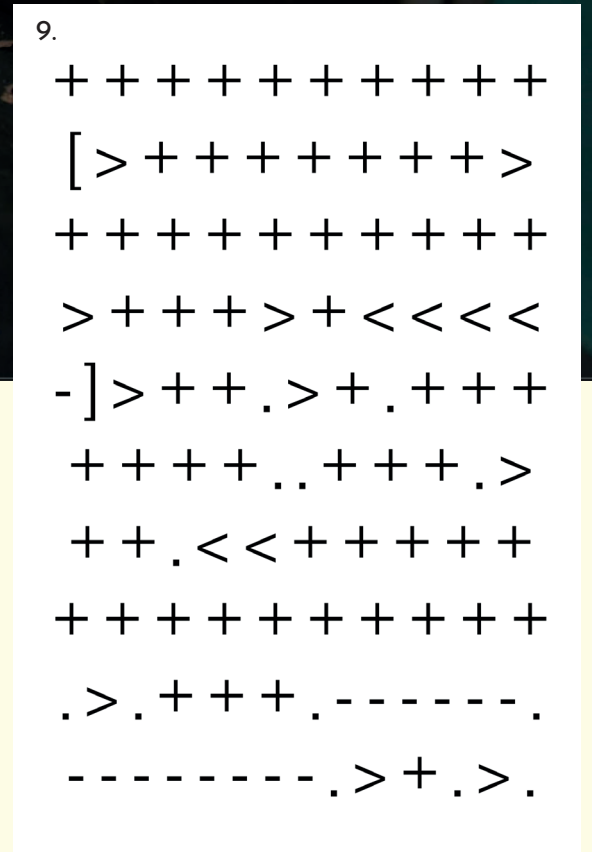
- 1. Computer Interface: Metal box from slide projector, plastic square from view finder, paper, light, wire, battery [off-screen]
- 2. Pen/pencil holder: Metal button, wires
- 3. Robot & Plant: Photoshopped picture in plastic frame
- 4. Paper holder: Cut paper, wire mesh, wire
- 5. Desk: Painted wood desk
- 7. Transformer: Transformer
- 8. Glass with green screen behind it: To be edited out in post



\*This poster was provided by the Council of Workplace Safety [a subcommittee of the Safer Workplace Initiative]



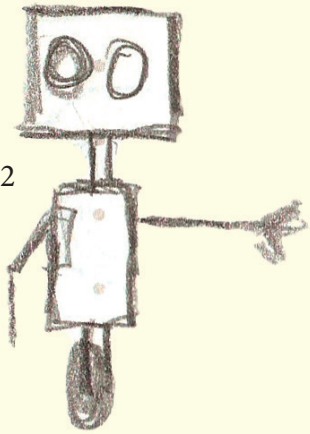
- 10. Trash can: Metal outerbody of a large electric motor
  - 11. Overhead "solar" lights: Metal, spring from electronics learning kit, wire, LED.
- The Robot has a solar panel on their head. The lights overhead are supposed to be UV that would charge the robots while working. An early version of the plot had the Robot charging their solar panel by the window and the wire is what knocked the plant off the table.



10



12



1. Solar Panel Wire: String with wire placed into the core
2. Solar Panel: Empty watch face, red ribbon, wire mesh. Solar panel can be removed from Robot's head and placed elsewhere (connected by cord) to charge
3. Eyes: Incandescent light-bulbs, small sink mesh strainers placed on brass tubing and wrapped with wire
4. Shoulders: Two glasses hinges connected in separate directions
5. Body: Lighter body with top removed
6. Arm "sleeve:" Lighter wick put on top of metal glasses arm
7. Hands: "Graffco" Vise Signals, wire
8. Wheel connection: Lighter top
9. Wheel: Clay placed on metal circle with wire for the spokes
10. The electronics for the Robot's eyes: The battery for the lights used to be in the head so there wouldn't be a wire connected, but the batteries kept dying mid-shoot, needing to be replaced. They were then moved to a battery box with a switch, separate from the Robot
- 11 & 12. First sketches of ideas for the robot



New Plant-Based Formula!

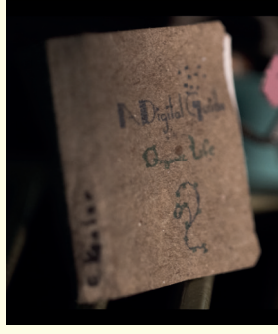
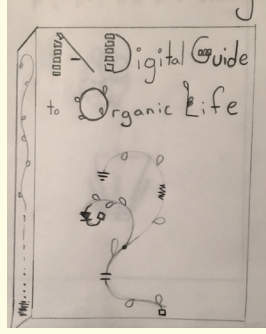
THE BEST

ROBOOIL

ALWAYS

(1.0) One Quart Net

The wrap for the can the Robot throws.



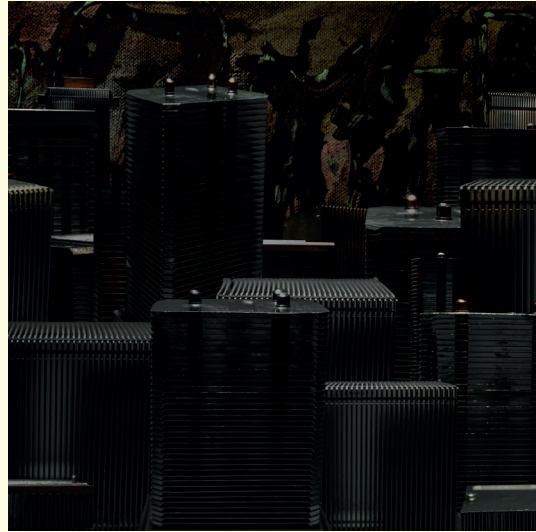
The sketch and final design of the book, "A Digital Guide to Organic Life," the Robot read while at lunch. Inspired by fond memories of reading while in the cafeteria in the misery of Middle School

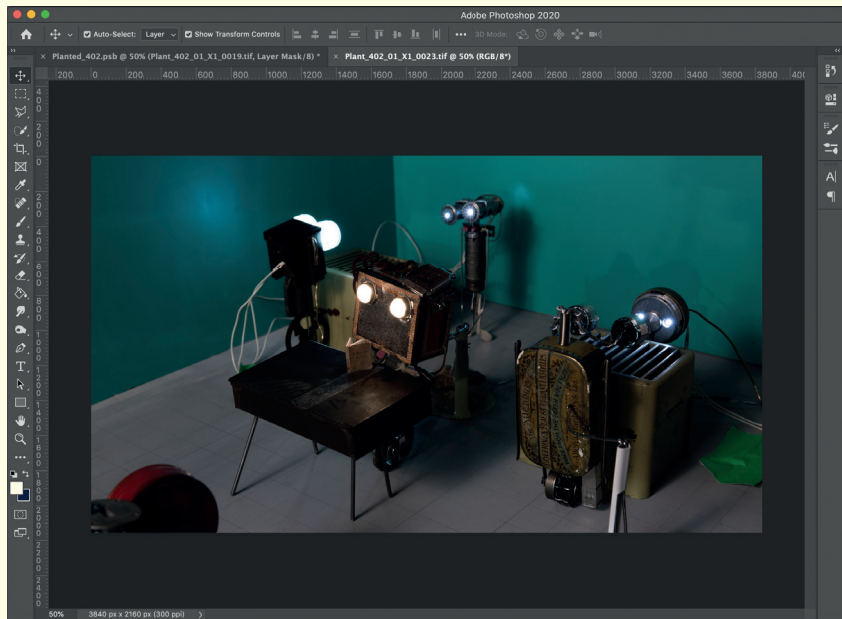
The color palette for the illustrations used in Planted.



The painting for the forest background. Used in place of the greenscreen in the outdoor set and inside the cabin.

The image used for the "city." It was used in place of the green screen inside the two glass window orbs in the office set.





All of the puppets had supports that needed to be edited out. Roughly, an image of the background is placed behind the image being edited. The puppet supports are then erased, leaving the empty background in its place. Care needs to be taken to keep lighting consistent and to not overlap elements that will eventually be edited out. This had to be done for all 6,000+ frames in the film.



Stop-motion animation is a lot of shots placed together to give the impression of motion. Because of this, all outside light needs to be blocked out to keep the lighting consistent. If any of the light changes (i.e. outside light, lights dim, changing shadows), the final film will flicker.

Filming in the Robot's cabin. All windows need to be green-screened out so that the forest can be edited in afterwards.



The set for all of the outdoor shots. The set was 6ft long and covered in dirt. There is a hole where the plant is buried because the Robot needed to be able to dig down and the dirt elsewhere on the set wasn't thick enough. There is a box of dirt underneath the hole.







The Robot's voice originates from a recording of wiping a wet cloth on a mirror. The different sounds were then pitched, shortened, and cut to make specific reactions and expressions.



All of the foley and music was recorded exclusively for Planted. The majority of the musical instruments were recorded using analog instruments performed by Elliot.



```

void setup(){
  size(500, 500);
  background(255);
  noLoop();
}

void draw(){
  background(255);
  noFill();
  strokeCap(ROUND);
  strokeJoin(ROUND);
  int x = 0;
  int y = 0;
  int numberOfPlants = 11;
  int stroke = 255;
  int fillAlpha = 0;
  int distance = 6;

  for(int i=-5; i<=5; i++){
    x = i*distance;

    //Set stroke
    stroke(stroke);
    stroke -= (255/numberOfPlants);

    //Set Fill
    fill(98, 208, 157, fillAlpha);

    //Leaves
    strokeWeight(1);
    bezier(222+x, 193+y, -4+x, 261+y, 157+x, 431+y, 222+x, 193+y);
    bezier(222+x, 193+y, 340+x, -7+y, 157+x, 28+y, 222+x, 193+y);
    bezier(222+x, 193+y, 542+x, 324+y, 327+x, 80+y, 222+x, 193+y);

    noFill();

    //Stem
    strokeWeight(2);
    bezier(222+x, 193+y, 260+x, 270+y, 267+x, 271+y, 271+x, 354+y);

    fill(255, 160, 157, fillAlpha);
    //Pot
    strokeWeight(4);
    rect(220+x, 354+y, 100, 100, 5, 5, 20, 20);

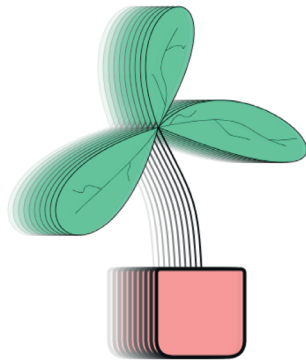
    noFill();

    //Veins
    strokeWeight(0.5);
    bezier(222+x, 193+y, 335+x, 170+y, 309+x, 198+y, 367+x, 214+y);
    bezier(222+x, 193+y, 251+x, 120+y, 200+x, 153+y, 244+x, 80+y);
    bezier(222+x, 193+y, 203+x, 226+y, 137+x, 280+y, 128+x, 291+y);

    bezier(253+x, 100+y, 246+x, 111+y, 257+x, 90+y, 230+x, 106+y);
    bezier(265+x, 174+y, 248+x, 194+y, 251+x, 164+y, 235+x, 190+y);
    bezier(286+x, 184+y, 311+x, 209+y, 295+x, 198+y, 326+x, 207+y);
    bezier(190+x, 233+y, 192+x, 241+y, 184+x, 238+y, 189+x, 254+y);
    bezier(157+x, 263+y, 125+x, 250+y, 149+x, 276+y, 125+x, 264+y);
    bezier(348+x, 207+y, 366+x, 208+y, 348+x, 208+y, 379+x, 206+y);
    bezier(215+x, 133+y, 217+x, 132+y, 222+x, 146+y, 230+x, 168+y);

    fillAlpha += (255/11);
  }
}

```



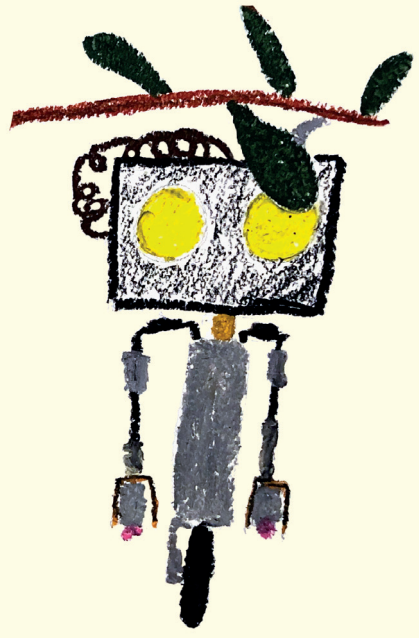
Many changes took place throughout the film process: scenes were cut for time or efficiency, music changed, etc, etc. The piece to the left is a poster that was supposed to hang on the wall at work or in the Robot's cabin. It is a program written in Java using the framework Processing. There are many small computer science references in the props and story. The "clock" in the office scenes says "01::01::1970 00:00:00" or UNIX Epoch time.



Planted

Unicycling was used as reference for the motion of the robots throughout the film. In order to stay upright, a unicyclist has to "idle" by rocking back and forth, mainting motion and balance.





**NYC  
BOS  
PVD**

**4 Years 8 Months**

**3 Apartments**

**6000+ Frames**

**Countless  
Cups of Tea**

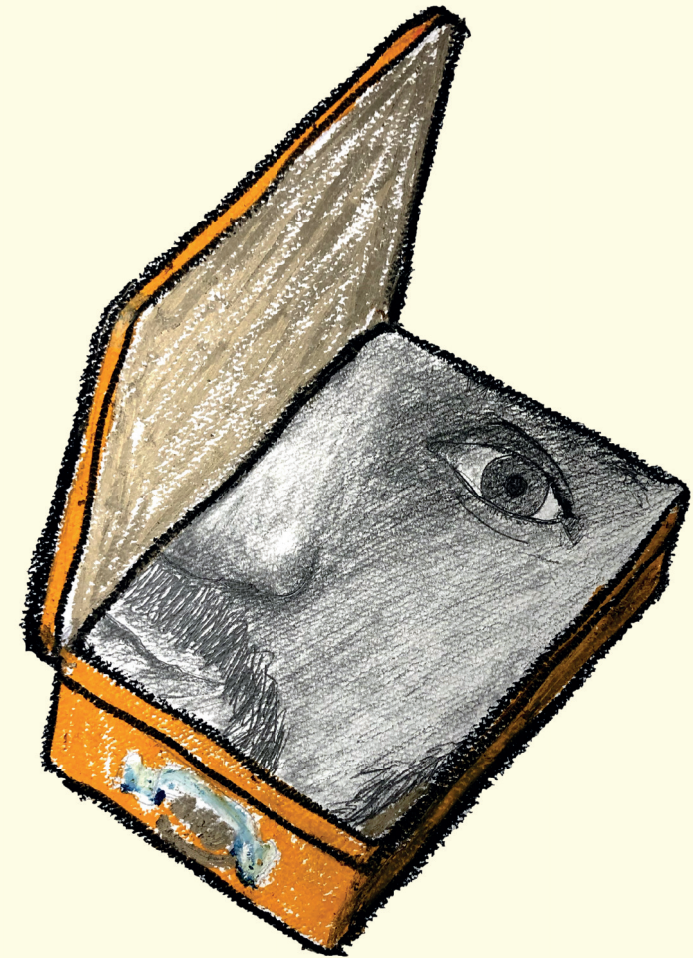
**4 Broken  
Tiny Clay Pots**

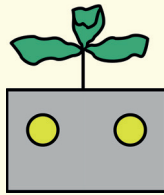
**10+ Acoustic  
Instruments**



Elliot is a multi-disciplinary illustrator & artist. Their work often sheds light on the mundane, providing new perspectives on common artifacts.

“The making of Planted has been a long and arduous process. I wish that there was a different narrative that I could spin, but I found it akin to running a very, very long distance for the first time. It’s painful and tiring, but afterwards you are overjoyed with your accomplishment and feel glad to have done it. I thought Planted would take me 6 months. More than four years later, I’m wondering how this film will ever convey the journey I went on to make it. Every single detail from the music, to the sets, to the puppets, to the scheduling/publicity/marketing/time-management was carefully considered and hand-crafted . I have learned a lot and will probably spend a bit of time nursing both my physical and mental cuts, bruises, and burns. I’m glad to have left and I’m glad to be coming home.”





**03/16 - 11/20**