



Street Tree #01 | Root Border Control

How main-road noise, vibration, and emissions redraw a tree's navigable world

| Background & Question

Target: a roadside street tree under constant noise, vibration, emissions

Question: when the tree pit shrinks, how do roots “smuggle” through hard surfaces?



| Main Road | Noise Vibration Pollution | Compacted Paving

| Research Approach

Four evidence channels to reconstruct the tree’s sensed world

| Visual

cracks, patches, heaves, boundaries



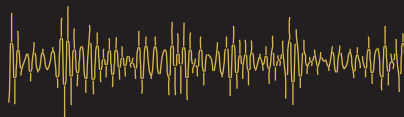
| sonic

traffic audio



| Vibration

accelerometer snapshots



| Mapping

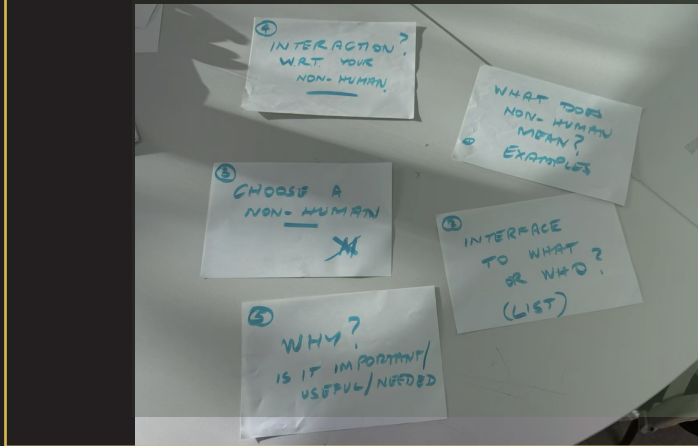
pit size + crack paths



| Main Road | Traffic Audio | Vibration Impact | Root Pathway

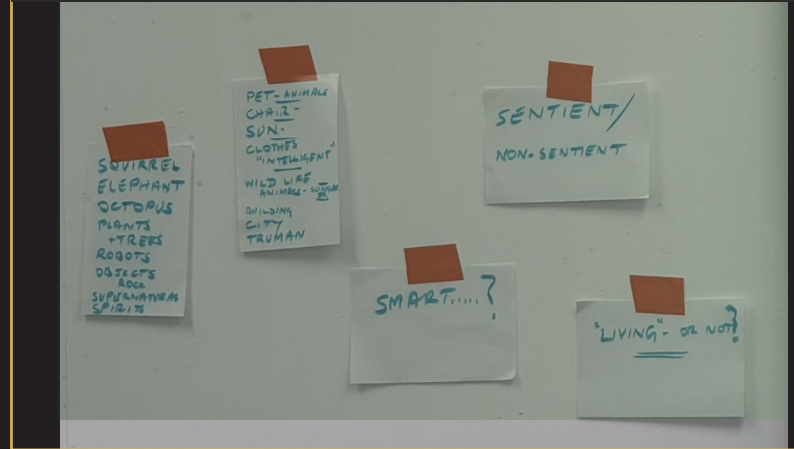
Studio Notes | Class Questions

01 Prompt Cards



Five prompts used in class to define 'interaction' beyond humans.

02 Sticky Wall



Sticky-note debate: living? smart? sentient? where is the interface?

What I took forward

Non-human user: street tree (root navigation system)
Interface ≠ screen: pavement/borders/cracks can be interfaces
Interaction ≠ dialogue: it's signals + behavioural feedback

| Non-human User Profile

The user is not the tree — it's a root navigation system



Perception:

vibration field, air chemistry, compaction, moisture gradient, heat stress

Needs:

oxygenated root zone, stable moisture pockets, expansion paths, recovery time

Signals:

pavement heave, crack-following routes, patch avoidance, stress symptoms

| PACT Framing

People

maintenance crews, drivers, pedestrians, residents



Context

main-road microclimate + pit boundary + crack corridors



Activities

resurfacing/patching/cleaning/traffic vs root probing/resource allocation

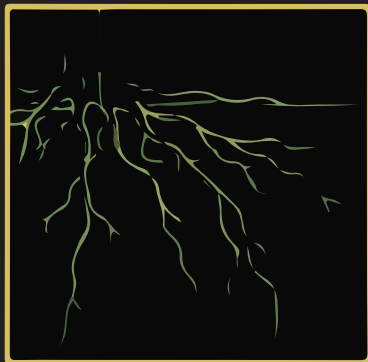


Technologies

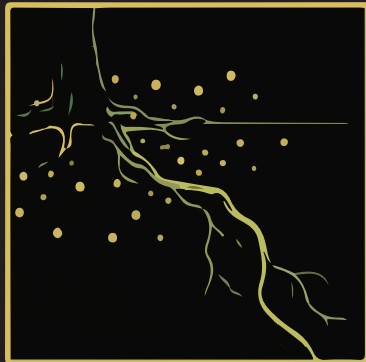
asphalt/paving, patch materials, drainage, traffic system



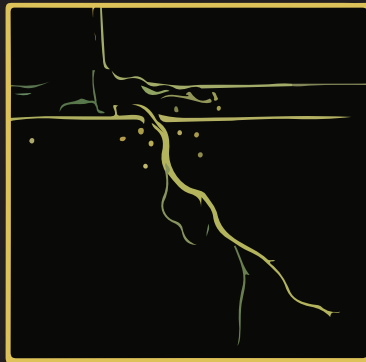
Street Tree #01 | Root Journey



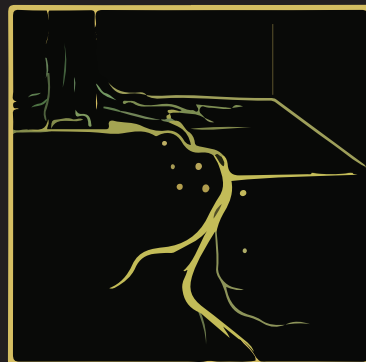
I awake at the border.



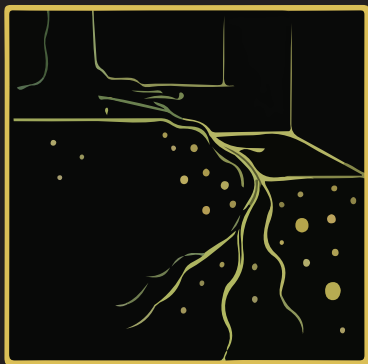
Vibration arrives like breath.



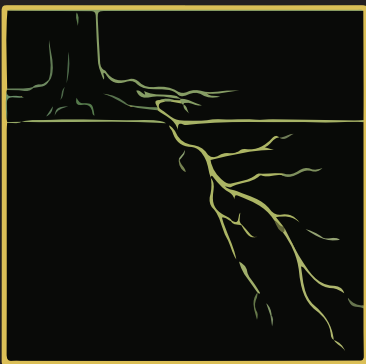
Soil hardens; I probe.



A crack appears.



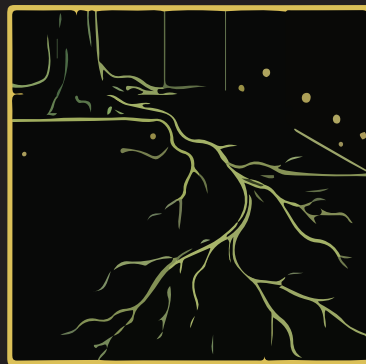
I move along it.



Closer to the road, pressure intensifies.



I edge-walk around it.



I survive, but the world narrows.

| After Root Journey

The curb/boundary is the key interface where roots read pressure and risk.

The crack network forms an invisible map linking access to moisture, air, and nutrients.

Root “smuggling” is an adaptive strategy—avoid forbidden zones, survive via gaps.

A smooth road for humans can be an impassable wall for roots.

| Design Moves

01 Soften the edge

Keep a breathable buffer-bigger pits or permeable margins

Use elastic / permeable materials instead of sealing

02 Provide corridors

Treat cracks as temporary corridors-guide rather than blindly patch

Add controlled permeable guide-lines where roots can pass

03 Sense & Warm

Use simple metrics (dB/vibration/moisture) as risk labels

Make the tree's sensing legible for humans