

# 3D model of a precarious neighborhood as a citizen science dispositive

João cão Duarte  
[cao.joao@gmail.com](mailto:cao.joao@gmail.com)

PartiSCiP International  
Workshop 2019



**CFCUL**  
Centre for Philosophy of Sciences  
of the University of Lisbon  
<http://cfcul.fc.ul.pt>

**F C**  
**Ciências  
ULisboa**  
Faculdade  
de Ciências  
da Universidade  
de Lisboa

**U**  
**LISBOA**  
UNIVERSIDADE  
DE LISBOA



**PROGRAMAS DE DOUTORAMENTO FCT**

3D Model of a precarious neighborhood as a citizen science dispositive

## Outline

Segundo Torrão, Almada, Portugal

Novos Decisores Ciências

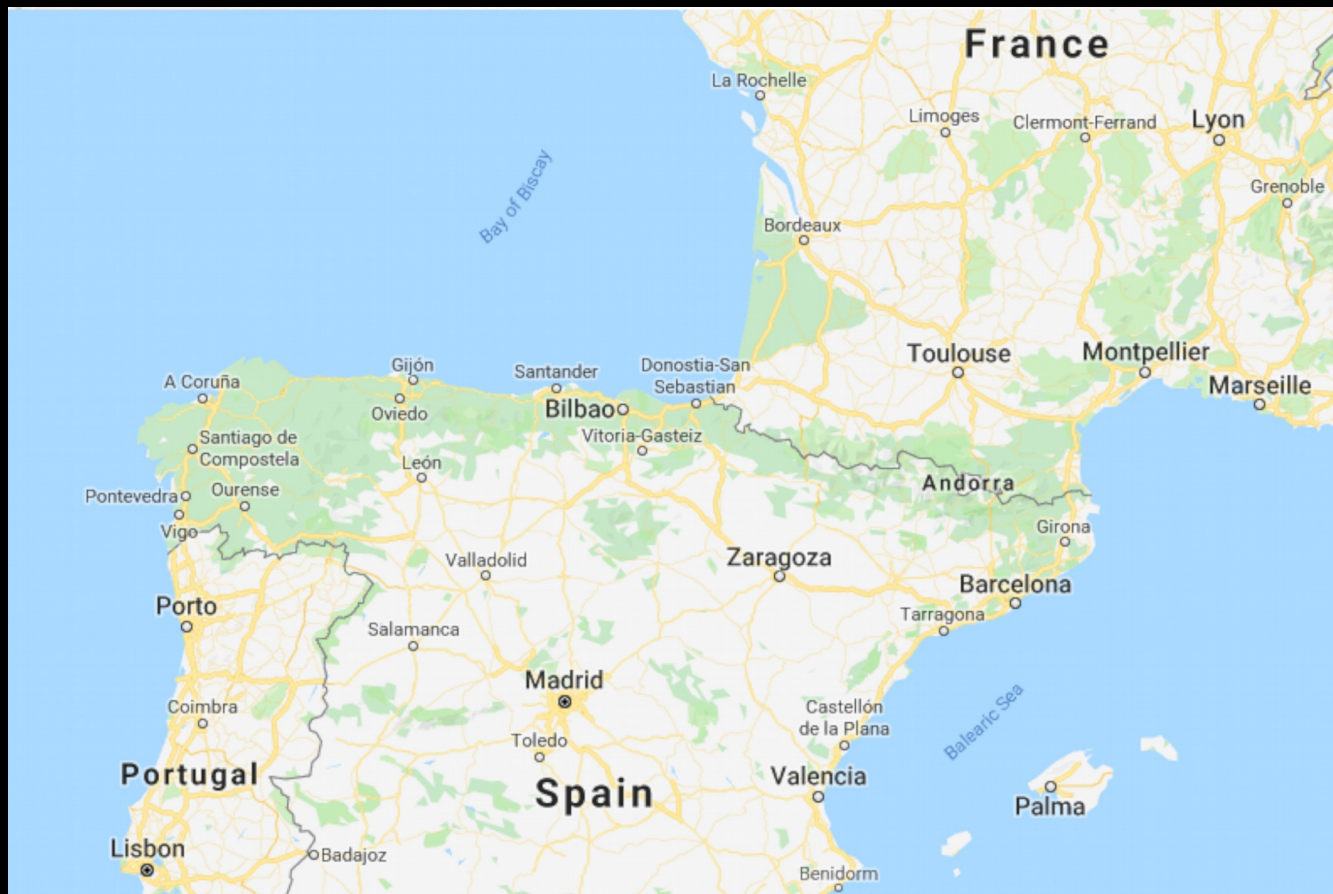
3D Model as a dispositive

Situating Sea invasion

Heuristics and politics of participation

3D Model of a precarious neighborhood as a citizen science dispositive

## Segundo Torrão, Almada, Portugal



3D Model of a precarious neighborhood as a citizen science dispositive

## Segundo Torrão, Almada, Portugal



3D Model of a precarious neighborhood as a citizen science dispositive

## Segundo Torrão, Almada, Portugal



3D Model of a precarious neighborhood as a citizen science dispositive

## Novos Decisores Ciências

**Nouveaux Commanditaires – Sciences** Protocol was projected by *Atelier des Jours à Venir* and *Fondation de France* to guide and question communities of non-scientists to engage in dialogue with researchers and co-create open research questions.

<http://www.joursavenir.org/ncs/en>



3D Model of a precarious neighborhood as a citizen science dispositive

## Novos Decisores Ciências

**Novos Decisores Ciências** is a citizen science project between inhabitants of Segundo Torrão, researchers on coastal geology and oceanography and mediators. A common problem was identified in 2014: the **marine flooding and coastal changes during storms**.

---

2014	2015	2016	2018
Finding the scientific problem		Preliminary research	Financed research

3D Model of a precarious neighborhood as a citizen science dispositive

## 3D Model as a dispositive

Participative dispositive consisted in a 3D model, mediator agents, audio recorder, liquid paint markers, card pieces and needles. It was implemented in the Summer 2016.

3D Model of a precarious neighborhood as a citizen science dispositive

## 3D Model as a dispositive



## 3D Model of a precarious neighborhood as a citizen science dispositive

# 3D Model as a dispositive

### Objectives:

*In-situ* data collection to support Coastal Geology/Oceanography preliminary research. When and where past changes took place?

(1) Local changes in the coastline morphology; (2) Identification of events of erosion and sand accumulation; (3) Marine sea invasion events and the reach of the swash motion;

ITW of	address	Where (point on map)	Sea Invasion		Sea Invasion		Sea Invasion		Sea Invasion	
			when	height	when	height	when	height	when	height
João do Torão	rua do...	A	Coastline		Coastline		Coastline		Coastline	
			year	distance	year	distance	year	distance	year	distance
			Sand Invasion		Sand Invasion		Sand Invasion		Sand Invasion	
			when	how much	when	how much	when	how much	when	how much
	rua do...	B	Sea Invasion		Sea Invasion		Sea Invasion		Sea Invasion	
			when	height	when	height	when	height	when	height
			Coastline		Coastline		Coastline		Coastline	
			year	distance	year	distance	year	distance	year	distance
	rua do...	C	Sea Invasion		Sea Invasion		Sea Invasion		Sea Invasion	
			when	height	when	height	when	height	when	height
			Coastline		Coastline		Coastline		Coastline	
			year	distance	year	distance	year	distance	year	distance

3D Model of a precarious neighborhood as a citizen science dispositive

## 3D Model as a dispositive



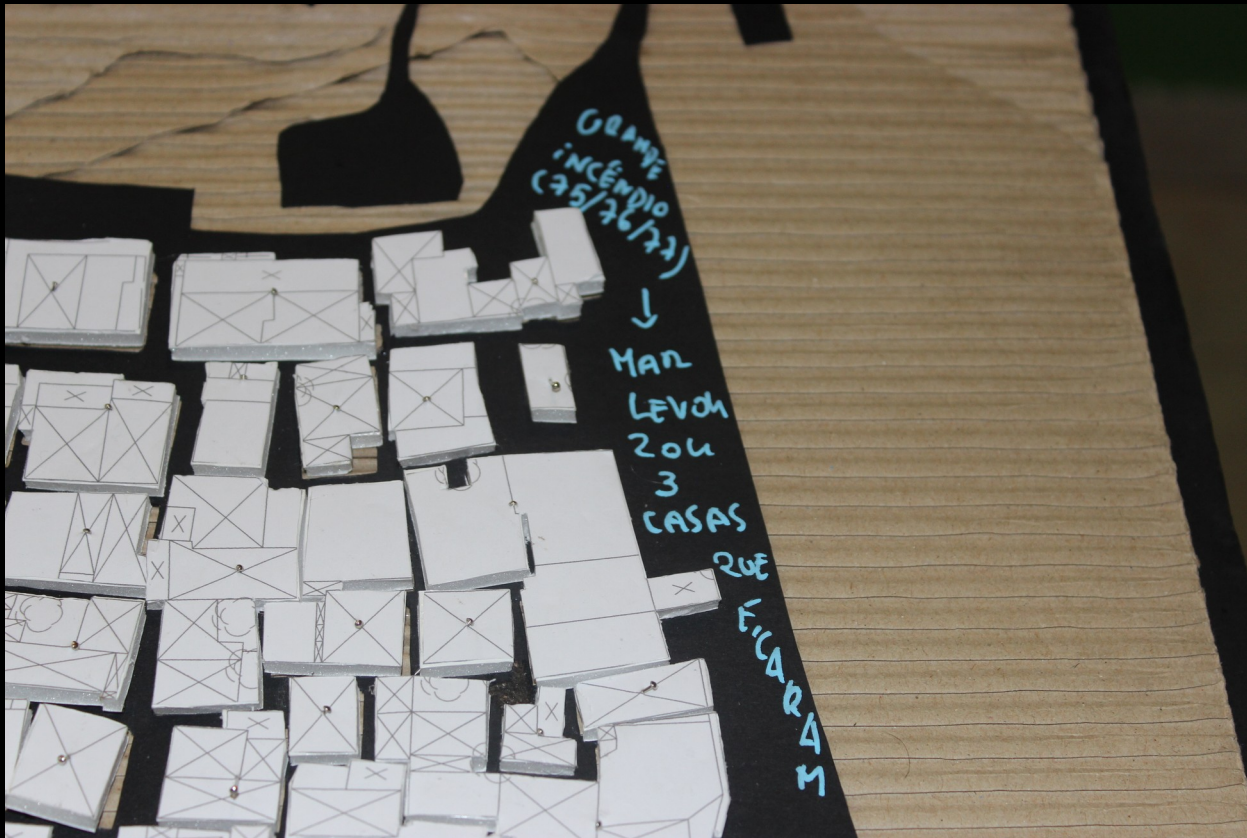
3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion

On July 22nd 2016, in the first day of residence of the participative dispositive in 'Café Netos', in Segundo Torrão, one inhabitant, Lau, identifies a **severe sea invasion event in the 1970's**. Two or three houses were then taken. Lau correlates this sea invasion with a fire that affected the same region of the territory. According to his recollection, first it hit the fire, then the flooding.

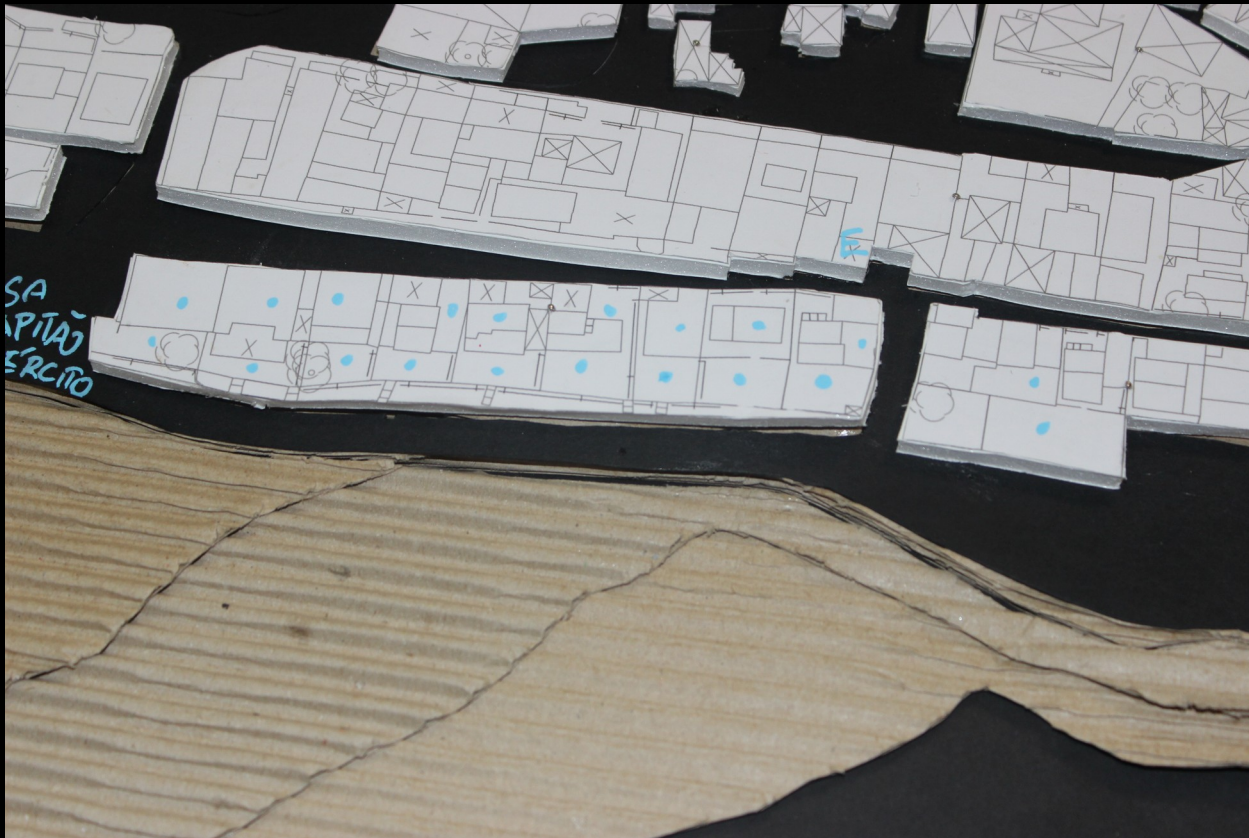
3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion



3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion



3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion

Finding during the next days the inscription of Lau's event in the 3D model installed at 'Café Netos', some neighbours entered into dissensus.

Was the 1979's fire before or after the flooding? Tiago and Lau believe it was before. Lima and Vasco think it was after. After the big fire, the prime construction material wasn't wood anymore. Therefore, the wooden houses were forcefully taken by the sea before the fire hit ground.

Discussions are lively around here, to be quickly diluted in the hot summer afternoon. People come in to drink, the discussion goes somewhere else. Children appropriate the model as a toy.

Maquete de um bairro precário como dispositivo de ciência cidadã

## Situating sea invasion

On July 24th Lau returns to the coffee place with a surprising set of photographs. These serve as testimony of the tragic sea invasion that was discussed in the previous days.

3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion



3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion

The passage of the participative dispositive through 'Café Netos' made a mark. Lau offered one photography of the 1979's remaining houses after the landslide, to the owner of the Café, Lima. With proud she framed it and put it in the wall.

In the following days of August, a consensus was attained concerning the chronological events. An individual had recognized his house in the picture and shared compelling arguments how neighbours still used wood to build after the fire.

3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion



3D Model of a precarious neighborhood as a citizen science dispositive

## Situating sea invasion

At last, great proud was taken of the moment portrayed in the wall. Gi was involved in the early days of community organisation in this neighborhood. As she saw the picture, she recalled how an inhabitants committee was successful in engaging the prime Minister Maria de Lourdes Pintasilgo, that ordered the first riprap to protect and mitigate risks.

3D Model of a precarious neighborhood as a citizen science dispositive

## Heuristics and politics of participation

**Charles S. Peirce** (1839 – 1914)



“Different minds may set out with the most antagonistic views, but the progress of investigation carries them by a force outside of themselves to one and the same conclusion. (...) The opinion which is fated to be ultimately agreed to by all who investigate is what we mean by truth, and the object represented is the real” (Peirce 1878, CP 5.407).

3D Model of a precarious neighborhood as a citizen science dispositive

## Heuristics and politics of participation

### Charles S. Peirce (1839 – 1914)



In 1904 in *New Elements*, Peirce develops further his semeiotics. The signs can be divided in three forms: The **index** is in a real relationship with the object, just like the weather-cock with the wind and represents deduction; The **symbol** determines the interpretant sign and represents induction; The **icon** represents abduction or hypothesis (Peirce 1904, EP 302-324).

3D Model of a precarious neighborhood as a citizen science dispositive

## Heuristics and politics of participation

Mathieu Berger



Critic to social participation for urban planning  
– **Semiotic Turn:** Substitution of ‘symbolic modalities’ of participation (as argumentation by norms) by ‘indexical modalities’ (designation of objects) and ‘iconical modalities’ (onomatopoeia, gestures, metaphors) (Berger 2014)

## 3D Model of a precarious neighborhood as a citizen science dispositive

### Heuristics and politics of participation

- Elements of the 3D model served as heuristic *index* to past changes in the coast line and flooding events;
- The heuristic function of the dispositive is aligned with a semeiotic turn of social participation, as it carries out the accumulation of inscriptions;
- As a central piece of the dispositive, the 3D model works as an intermediary object, contributing to structuring the collective life (Vinck 1999);
- Other objects have been recruited towards the dispositive, as newspapers and photographs. One of these photos becomes a *symbol* of the community organisation in the neighborhood;