

Sensors

Computational topology - group project

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- 1 Problem description
 - Problem
 - Goals
- 2 Topological solution
 - Vietoris-Rips complex
 - Čech complex
 - Second Subsection
- 3 Second Main Section
 - Another Subsection

Number of sensors on the sphere of radius 1:

- each sensor gathers data from the surrounding area in the shape of a circle of radius R ,
- each sensor can communicate with other sensors which are at most r away.

- 1 Values of r and R are as small as possible.
- 2 The sensor network is connected.
- 3 The sensor network covers the whole sphere.
- 4 Remove obsolete sensors.
- 5 Find optimal distribution of 50 sensors on sphere.

Connected sensor network \longrightarrow Vietoris-Rips complex $VR_\delta(S)$ is connected.

- sensors: S ($S_i = (r_i, \phi_i, \theta_i)$),
- sensor connections $\{S_i, S_j\} \subset S; d(S_i, S_j) \leq 2\delta$,
- $F \subset S$ is a simplex in $VR_\delta(S)$, if $\text{diam } F \leq 2\delta$.

The sensor network covers the whole sphere \longrightarrow Euler characteristic of Čech complex should be that of a sphere.

- sensors: S ($S_i = (r_i, \phi_i, \theta_i)$),
- $B_\delta(x)$ closed ball with radius δ around x ,
- $\check{C}_\delta = \{\sigma \subset S, \cap_{x \in \sigma} B_\delta(x) \neq \emptyset\}$.

Second Slide Title

- First item.

Second Slide Title

- First item.
- Second item.

Second Slide Title

- First item.
- Second item.
- Third item.

Second Slide Title

- First item.
- Second item.
- Third item.
- Fourth item.

Second Slide Title

- First item.
- Second item.
- Third item.
- Fourth item.
- Fifth item.

Second Slide Title

- First item.
- Second item.
- Third item.
- Fourth item.
- Fifth item. Extra text in the fifth item.

Block Title

You can also highlight sections of your presentation in a block, with it's own title

Theorem

There are separate environments for theorems, examples, definitions and proofs.



Example

Here is an example of an example block.

Summary

- The **first main message** of your talk in one or two lines.
- The **second main message** of your talk in one or two lines.
- Perhaps a **third message**, but not more than that.
- Outlook
 - Something you haven't solved.
 - Something else you haven't solved.

For Further Reading I

-  A. Author.
Handbook of Everything.
Some Press, 1990.
-  S. Someone.
On this and that.
Journal of This and That, 2(1):50–100, 2000.