Exploiting semantic information in indoor environments

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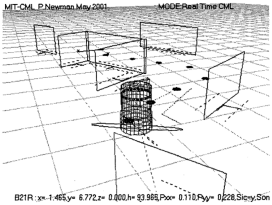
Federal University of Rio Grande do Sul
Institute of Informatics
Postgraduate Program in Computing

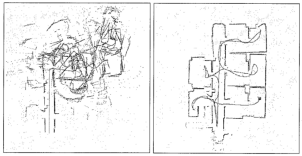
November 26, 2021

First years of mobile robotics

- Ages of mobile robotics:
  - Classical age (1986-2004)



(a) Real Time CML[1]



(b) Online mapping[2]

Figure: Initial works on SLAM

[1] Newman, Paul, et al. "*Explore and return: Experimental validation of real-time concurrent mapping and localization.*" ICRA, 2002

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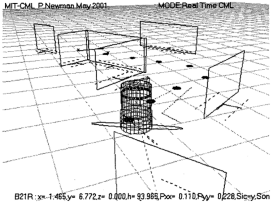

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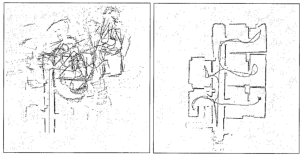

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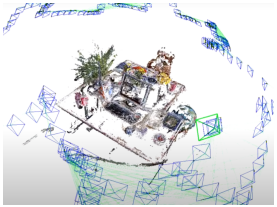

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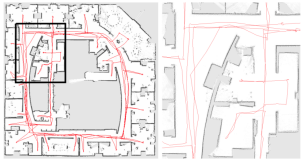

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Figure: Improved SLAM and Visual SLAM

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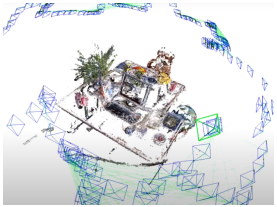

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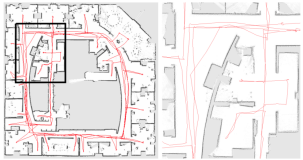

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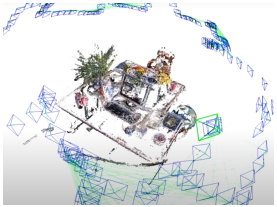

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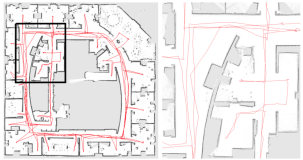

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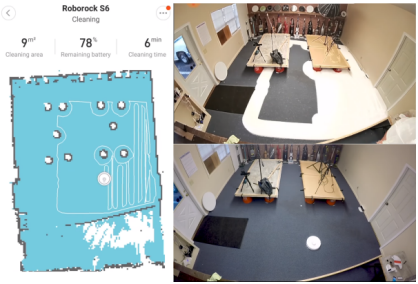

Figure: Vacuum cleaner robot in operation.[5]

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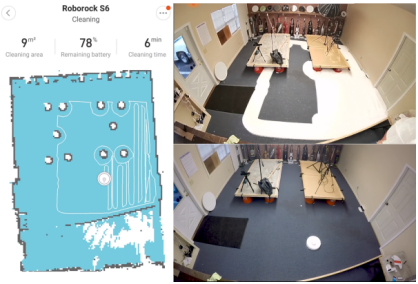

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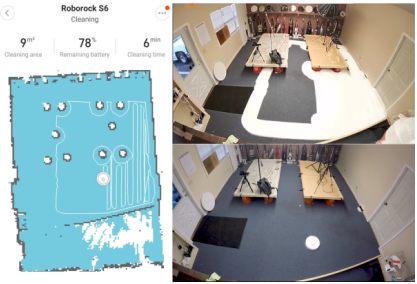

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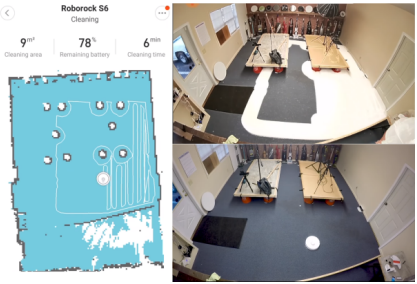

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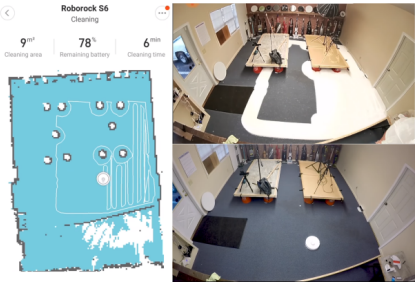

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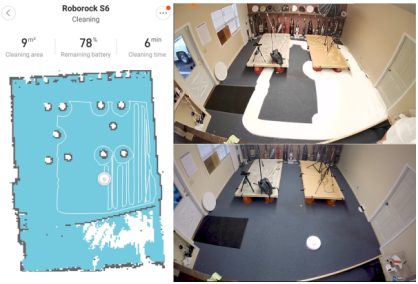

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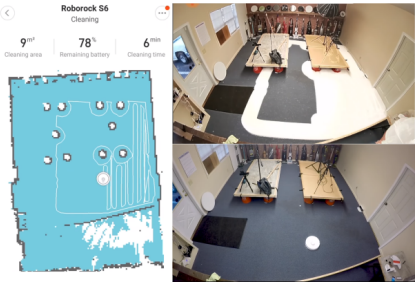

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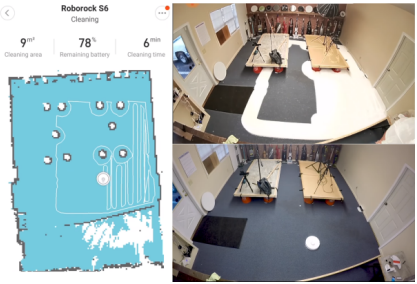
- How to overcome these limitations?



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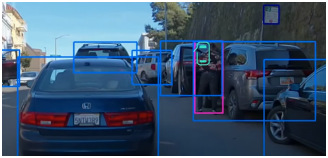
Expand the geometric perception

- **Associate meaning** to the parts of the **map**

(a) The sire of the fire truck



(b) The car door

Figure: Self-Driving System of an autonomous driving car.[6]

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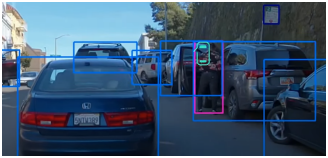

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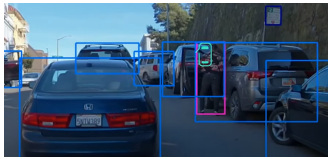

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- Essential for **high-level** tasks

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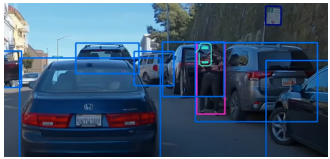

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Justificativa: blocos

Block 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer lectus nisl, ultricies in feugiat rutrum, porttitor sit amet augue. Aliquam ut tortor mauris. Sed volutpat ante purus, quis accumsan dolor.

Block 2

Pellentesque sed tellus purus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vestibulum quis magna at risus dictum tempor eu vitae velit.

Objetivos

Objetivo Geral

O objetivo geral é fazer um algoritmo para calcular expressão gênica a partir de uma parte da sequência de RNA

Objetivos Específicos

- Objetivo específico 1
- Objetivo específico 2
- Objetivo específico 3
- Objetivo específico 4

Fundamentação Teórica

- Nós utilizamos essa abordagem
- Assim assim
- Assado

Fundamentação Teórica

Nesta **abordagem** nós fizemos bla bla bla

- Exemplo de item
- Exemplo de item

Theorem (Mass–energy equivalence)

$E = mc^2$

Metodologia

Passos da metodologia

1. Statement
2. Explanation
3. Example

Explicando alguma coisa ... lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer lectus nisl, ultricies in feugiat rutrum, porttitor sit amet augue. Aliquam ut tortor mauris. Sed volutpat ante purus, quis accumsan dolor.

Resultados

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table: Table caption

Resultados

Figure. Aquí iría una imagen de un lago

Conclusão

- more work
- more responsibility
- more satisfaction

Agradecimentos

Agradeço a fulano, ciclano e beltrano que apoiaram o desenvolvimento dessa pesquisa.

Referências I


Shuntaro Takahashi, Hiroyuki Furusawa, Takuya Ueda, and Yoshio Okahata.
Translation enhancer improves the ribosome liberation from translation initiation.
Journal of the American Chemical Society, 135(35):13096–13106, 2013.

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