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# Affordance-Based Explanations of Robot Navigation

Amar Halilovic

Institute of Artificial Intelligence

Ulm University, Ulm, Germany

Senka Krivic

Faculty of Electrical Engineering

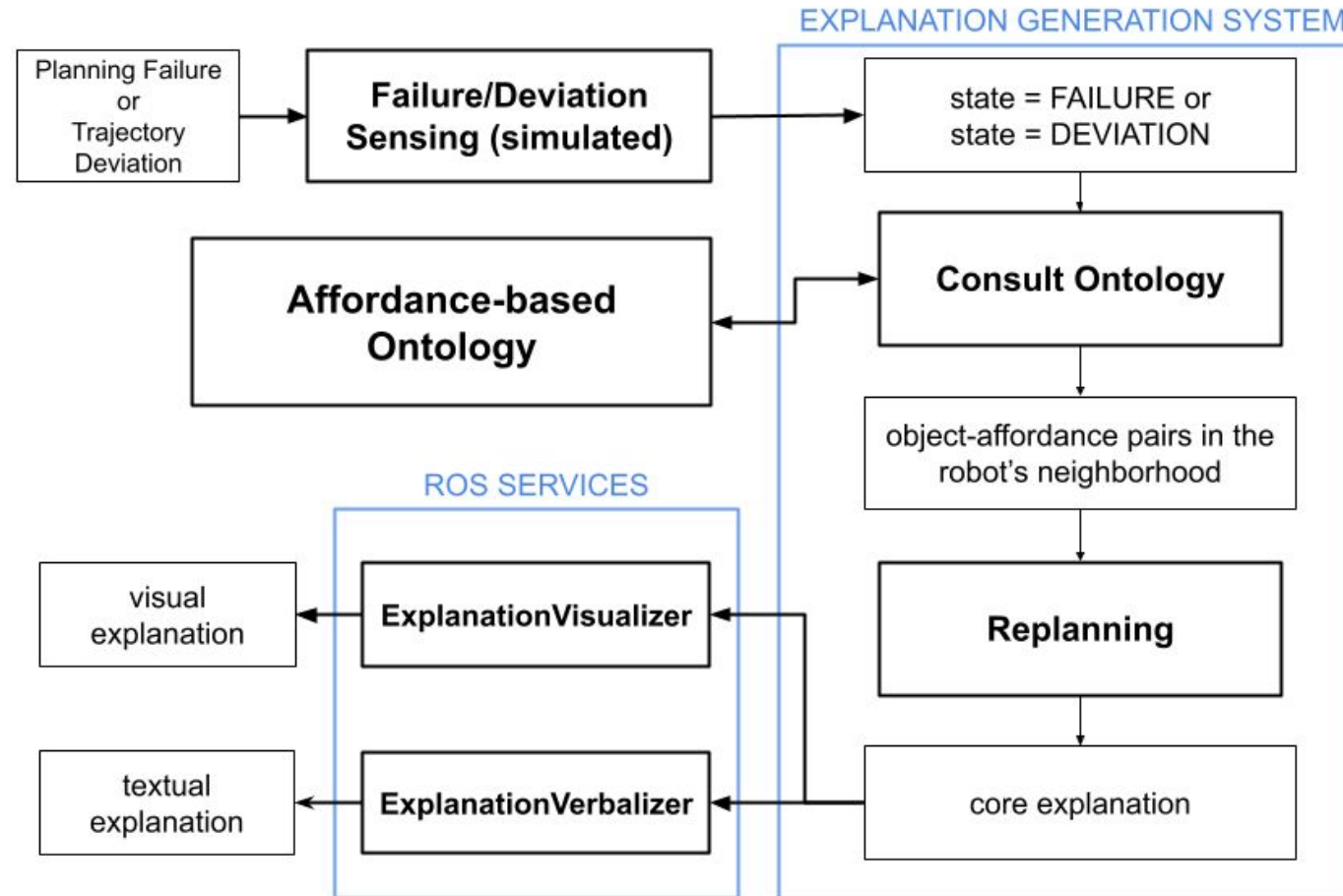
University of Sarajevo, Sarajevo, Bosnia and Herzegovina

# Motivation

- Lack of environmental explanations
- Affordances for explanations
- Service robot navigation in indoor social settings
- Visual and textual explanation embodiments

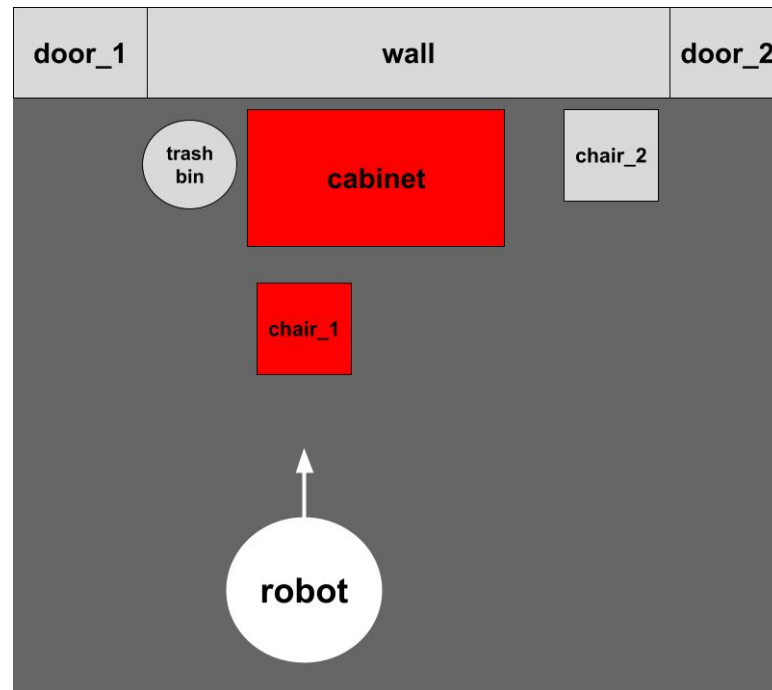


# Method

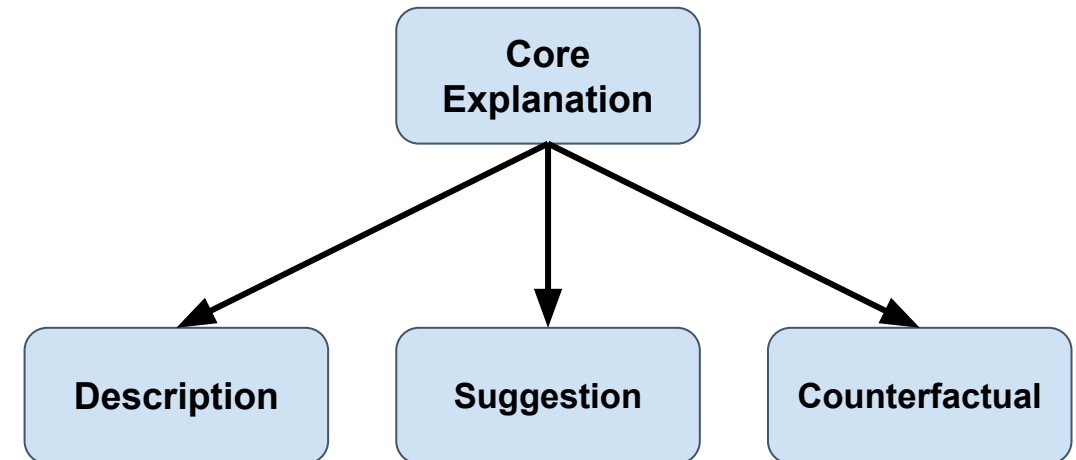


# Explanation visualization and verbalization

## Visualization

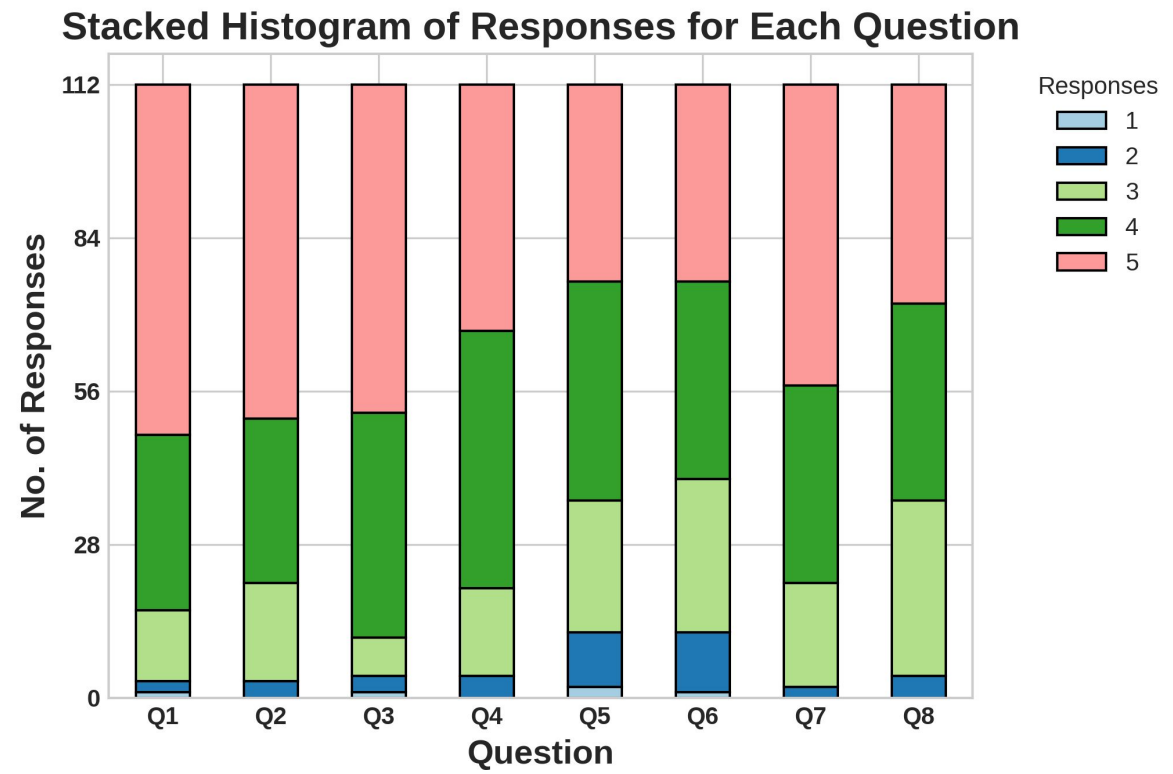


## Verbalization



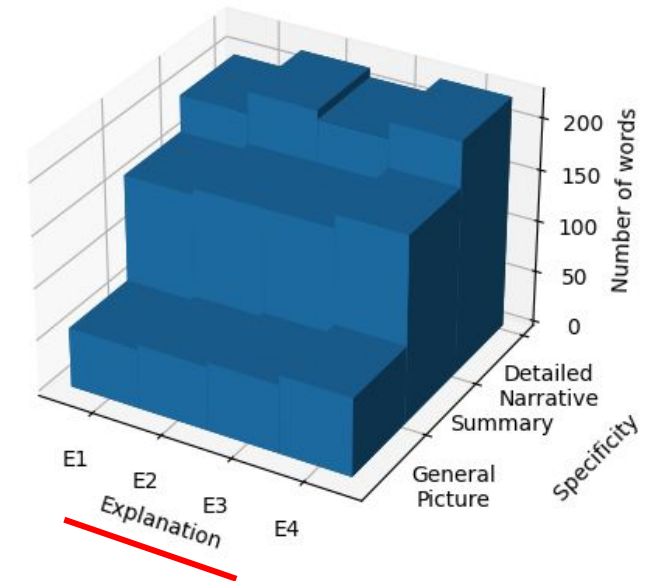
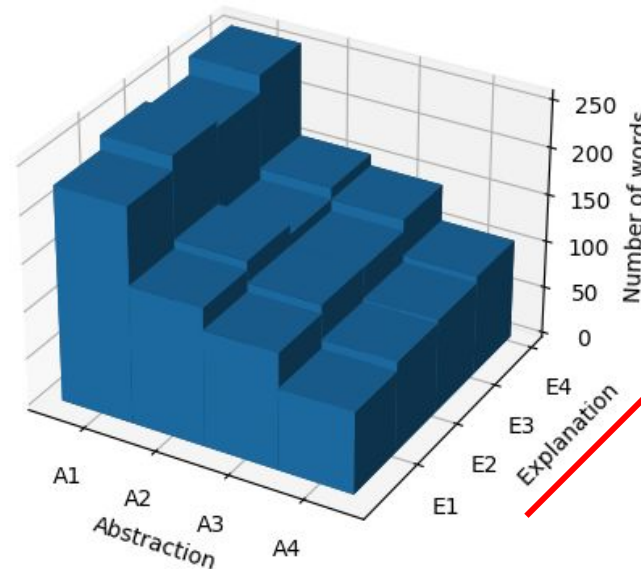
## User study on explanation satisfaction

- Five different tasks (scenarios)
- Online study
- 112 participants (volunteers)
- One participant group
- User explanation satisfaction scale used (Hoffman et al. 2018)\*



# Verbalization experiments

- Expanded the existing 3D verbalization framework\* with affordance-based explanations
- Explanations do not increase the number of words in verbalizations



\*Rosenthal, Stephanie, Sai P. Selvaraj, and Manuela M. Veloso. "Verbalization: Narration of Autonomous Robot Experience." IJCAI. Vol. 16. 2016.

\*Canal, Gerard, et al. "PlanVerb: Domain-Independent Verbalization and Summary of Task Plans." Proceedings of the AAAI Conference on Artificial Intelligence. Vol. 36. No. 9. 2022.



Thank you for  
your attention!

Amar Halilovic



Contact data:



Senka Krivic



Contact data:

