THÈSE

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Elaboration et Apprentissage de fonctions décisionnelles pour un robot assistant ou équipier

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Acknowledgments

blabla

Abstract

blabla summarized in english

Résumé

blabla résumé en francais

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Introduction

blabl intro

List of Publications

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Task Planning for Human Robot Collaboration Context

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Main inspiration HATP/EHDA

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2.1 Related work

2.1.1 HATP

2.1.2 Other human-aware task planner

2.2 A human aware task planner

2.2.1 distinct model of agents

agent models(beliefs, HTN, agenda, triggers)

2.2.2 solution format

2.2.3 planning process

planning process using HTNS action models

2.3 Examples

ICRA paper ?

2.3.1 Problem description

2.3.2 How it is solved

Chapter 3

Models and Algorithms for human-aware task planning with integrated theory of mind

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3.1 Introduction

We would want the robot to be able to reason and maintain correctly the distinct human beliefs. Despite modeling distinct beliefs, HATP/EHDA doesn't maintain in a principled way, only in a scripted way (domain specific). Here we propose some models and algorithms to integrated some concept of Theory of Mind in the planning process of HATP/EHDA.

Explaining false belief task (Sally and Anne)

3.2 Related works

3.2.1 epistemic planning

3.2.2 DEL

3.3 Maintaining the human beleifs

3.3.1 Enhanced problem specification

symbolic locations + state variable observability types

3.3.2 Situation Assessment Processes

Learn from observation of either: action execution or observable state.

3.4 Relevant False human beliefs

3.4.1 Detection

3.4.2 Resolution with minimal communication

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A Task planner making a robot compliant to human online decisions and preferences

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4.1 Introduction

4.2 Related works

paper Sonia UHTP

4.3 Model of Execution

4.3.1 Based on joint action litterature

4.3.2 Model description

4.3.3 Model utility

4.4 Exploration

heavy, Offline

4.4.1 compliant pairs

4.4.2 graph, merge state planning state

4.5 Policy generation

Light,

4.5.1 Human preferences

estimations, format, Discussion(often inaccurate, hence our Approach)

4.5.2 process

propagation + merge + policy format

4.6 Results

simulation of execution, without durative action

4.6.1 concept of aligned-adversarial pairs of prefs/estimations

4.6.2 results

4.7 Discussion and Limitations

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User Study to evaluate an integrated plan and execution scheme in simulation

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5.1 Introduction

why simulation: HRI rebuttal: we rely on a reactive execution, real life robot are slow and not very reactive thus may bias our results

5.2 Related work

of plan+execution, simulator

5.3 Description

planning is same
execution is based on model of execution and mock components
human collaborates in real time with robot in blockwords task
describe simulator, mouse, robot and human capabilities, goal shown, prompt

5.4 Study protocol

objective, participants, material, experiment design, procedure, measures

5.5 Study results

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Chapter 6

InHuS

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6.1 Introduction

Vers simulation humain intelligent pour benchmarker planner robot (nav + tache) InHuS: ère du digital twin : 1er pas vers ça, un peu générique, fait pour nav mais pourrait aller plus loin A mettre dans un chapitre "a part"

Objectives - Current challenges in testing ha nav

6.2 Related work

6.3 Description

architecture and how it works

6.3.1 main components

6.3.2 attitudes

6.3.3 metrics and logs

6.4 Main results

able to numerically identify the HA behavior of CoHAN w/r SMB)

6.5 Extension: IMHuS

6.5.1 Describe

6.5.2 results?

6.6 Discussion and Limitations

6.7 Conclusion

Chapter 7

Conclusions

blabla conclusion

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