

SLAM and speech recognition*

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Abstract—This paper aims to discuss the usage of ontology speech recognition in the context of SLAM in environmental disasters.

Index Terms—component, formatting, style, styling, insert

I. INTRODUCTION

Although SLAM techniques are widely adopted in the robotic community, the usage of SLAM techniques is not limited to robots: a human person may contribute to build a map (and be localized within this map) given that proper information is provided through wearable sensors. For example, the DIONISO project¹ foresees the presence of a team of human operators involved in Search & Rescue operations and endowed with wearable laser scanners and Inertial Measurement Units (IMU), to the end of exploring and mapping an unknown environment with the ultimate goal of finding injured persons after an earthquake. The great importance of SLAM algorithms based on wearable sensors is proven in Figure 1, showing the earthquake of magnitude 6.2 that happened at Amatrice, Italy, in 2016. Almost 300 persons were killed in the earthquake, and aerial images taken by drones showed houses and walls collapsed and swathes of the city completely flattened. As the reader may observe, ground robots may have significant problems in finding a path through debris. On the other side, human rescuers equipped with wearable sensors and mapping algorithms may significantly contribute to explore the area in the fastest way as possible, with a significant impact in terms of lives saved. Specifically, using the information provided by wearable sensors, the path of each operator (consisting in a sequence of 2D poses) and the map of the area that the operator has already visited (a 2D grid of empty/occupied spaces) can be estimated: by merging all the local maps generated by different operators, a global map can be built up, and possibly visualized in run-time to the end of improving the rescuing process.

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Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, ac, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

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- The word “data” is plural, not singular.
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An excellent style manual for science writers is [7].

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a) *Positioning Figures and Tables:* Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation “Fig. 1”, even at the beginning of a sentence.

TABLE I
TABLE TYPE STYLES

| Table Head | Table Column Head | | |
|------------|------------------------------|---------|---------|
| | Table column subhead | Subhead | Subhead |
| copy | More table copy ^a | | |

^aSample of a Table footnote.

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an example, write the quantity “Magnetization”, or “Magnetization, M”, not just “M”. If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization {A[m(1)]}”, not just “A/m”. Do not label axes with a ratio of



Fig. 1. Example of a figure caption.

quantities and units. For example, write “Temperature (K)”, not “Temperature/K”.

ACKNOWLEDGMENT

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression “one of us (R. B. G.) thanks ...”. Instead, try “R. B. G. thanks...”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

Please number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] was the first ...”

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