Human detection by Histogam of Oriented Gradient

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*Abstract*—Object detection, especially human detection in images processing is important objective and more potential. It can be applied to the variety of practical applications, such as Advanced driver-assistance systems (ADAS) or Unmanned aerial vehicle (UAV). One of the most popular and successful algorithms for object detection is Histogram of Oriented Gradient (HOG) feature and Support Vector Machine (SVM) classification. This paper presents the solution to optimized HOG features extract algorithm and implement in hardware. Discard magnitude and angle for gradient vector calculation is essential for increase throughput and reduces area cost.

Keywords—Human dectection, Histogram of Oriented Gradi-ent, Support Vector Machine

# Introduction

The computer is very popular with our lives, it can perform highly complex tasks with real-time requirements. However, it is something that the computer cannot replace people, one of which is the replacement of the human eyes. The lives fill up with the thousands of different objects every day, from artifacts like houses, cars… to natural like plants, animals, mountains… people can recognize all of them. For instant, the “auto” word constants many types like car, trunk, bus… but people can distinguish them. But nowadays, the computer far away from this analysis. There for, one of the most important goals is researching computer vision is able to analyze images and objects detection. At this time, computer can applied for high technologies: Advanced driver-assistance systems (ADAS) or Unmanned aerial vehicle (UAV)…

However, applying images processing algorithm in real environment is difficult. H

# Previous work

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*a**b*    

Note that the equation is centered using a center tab stop. Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1),” not “Eq. (1)” or “equation (1),” except at the beginning of a sentence: “Equation (1) is ...”

## Some Common Mistakes

* The word “data” is plural, not singular.
* The subscript for the permeability of vacuum **0, and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o.”
* In American English, commas, semi-/colons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
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* There is no period after the “et” in the Latin abbreviation “et al.”
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1. Table Styles

| Table Head | Table Column Head | | |
| --- | --- | --- | --- |
| Table column subhead | Subhead | Subhead |
| copy | More table copya |  |  |

1. Sample of a Table footnote. *(Table footnote)*
2. Example of a figure caption. *(figure caption)*

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

##### Acknowledgment *(Heading 5)*

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

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1. G. Eason, B. Noble, and I.N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529-551, April 1955. (*references*)

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1. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.
2. I.S. Jacobs and C.P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G.T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.
3. K. Elissa, “Title of paper if known,” unpublished.
4. R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
5. Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
6. M. Young, The Technical Writer’s Handbook. Mill Valley, CA: University Science, 1989.