# Visión Computacional aplicado en la Seguridad y Comunicaciones

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***Resumen*—La vision computacional como tecnica de deteccion o analisis de patrones , en la actualidad, es una norma. Desde la vigilancia mediante camaras de circuito cerrado hasta la elimicacion de ruidos en senñales de audio.**

**La vision computacional ha avanzando hasta un punto donde es capaz de analizar contextos , pudiendo identificar si se comete un delito o si existe una persona con actitud sospechosa.**

**Es por esto que en el presente articulo, se hara un recuento de las aplicaciones modernas de la visión computacional. Mas concretamente su aplicación en el capo de la seguridad , vigilancia y telecomunicaciones.**

***Índice de Términos*—Vision Computacional, Seguridad, Seguridad Informatica, Vigilancia, Telecomunicaciones, Procesamiento de Señales, DeepFake.**

## I. Introduccion

¡Escribir Luego¿

## II. La vigilancia automatizada

### A. Decada de los 90's

Desde que se empezó a usar de forma comercial tecnologías de procesamiento de imágenes para detectar movimiento en grabaciones tomadas por Cámaras de Circuito Cerrado *(CCTV , por sus siglas en ingles)* en los años 80's, se veía el potencial pero también su mal rendimiento, especialmente por la alta taza de falsos negativos en la detección de intrusos (Sage and Young, 1998).

Sin embargo, una solucion que se considero y trabajo por mucho tiempo fue la de recopilar mas informacion para asi poder garantizar la disminucion de falsos negativos (Esto Basado en una cuestion estadistica, mas informacion, mejor prediccion).

Sin embargo, arrojar hardware a un problema de software es una solucion,que a la larga aumenta los costos de cualquier sistema. Ante esta problematica, se comenzo a plantear modelos estocasticos para no solo detectar variaciones en la escena filmada, sino para intentar tambien, trazar una ruta y aproximar este comportamiento a uno proximo de un humano (Sage and Young, 1998).

Gracias a las mejoras en las tecnicas de analisis y la mejor calidad en video, en los ultimos años de los 90's , se empezaron a plantear sistemas de detección en escenarios dinamicas, siendo un caso particular, las carreteras (Manendez et al., 1999). La motivación, tal como menciona el paper *Vigilancia de Autopistas mediante vision computaciona stereo* (Manendez et al., 1999, Abstract) se origina por el aumento de la demanda de automatizacion, la ubicuidad de camaras y la mayor necesidad de automatizacion y abaratamiento de costos.

En todo este escenario de crecimiento tecnologico, no solo de hardware , sino tambien de software y sus respectivos algoritmos, es que comienza a surgir la idea de extender estas aplicaciones a campos mas delicados: **Deteccion de crimenes y Verificacion Biometrica**.

### B. Decada de los 2000's

## III. El Auge de las Redes Neuronales

### A. Las Redes Neuronales, excelentes Clasificadores

### B. Las Redes Convolucionales, excelentes Extractores de Características

### C. Equations

Number equations consecutively. To make your equations more compact, you may use the solidus ( / ), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in:

$$a + b = \gamma \tag{1}$$

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 . . ."

### D. LaTeX-Specific Advice

Please use "soft" (e.g., `\eqref{Eq}`) cross references instead of "hard" references (e.g., `(1)`). That will make it possible to combine sections, add equations, or change the order of figures or citations without having to go through the file line by line.

Please don't use the `{eqnarray}` equation environment. Use `{align}` or `{IEEEeqnarray}` instead. The `{eqnarray}` environment leaves unsightly spaces around relation symbols.

Please note that the `{subequations}` environment in LaTeX will increment the main equation counter even when there are no equation numbers displayed. If you forget that, you might write an article in which the equation numbers skip

from (17) to (20), causing the copy editors to wonder if you've discovered a new method of counting.

BIBTEX does not work by magic. It doesn't get the bibliographic data from thin air but from .bib files. If you use BIBTEX to produce a bibliography you must send the .bib files.

LATEX can't read your mind. If you assign the same label to a subsubsection and a table, you might find that Table I has been cross referenced as Table IV-B3.

LATEX does not have precognitive abilities. If you put a `\label` command before the command that updates the counter it's supposed to be using, the label will pick up the last counter to be cross referenced instead. In particular, a `\label` command should not go before the caption of a figure or a table.

Do not use `\nonumber` inside the `{array}` environment. It will not stop equation numbers inside `{array}` (there won't be any anyway) and it might stop a wanted equation number in the surrounding equation.

### E. Some Common Mistakes

- The word "data" is plural, not singular.
- The subscript for the permeability of vacuum $\mu_0$, and other common scientific constants, is zero with subscript formatting, not a lowercase letter "o".
- In American English, commas, semicolons, 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.)
- A graph within a graph is an "inset", not an "insert". The word alternatively is preferred to the word "alternately" (unless you really mean something that alternates).
- Do not use the word "essentially" to mean "approximately" or "effectively".
- In your paper title, if the words "that uses" can accurately replace the word "using", capitalize the "u"; if not, keep using lower-cased.
- Be aware of the different meanings of the homophones "affect" and "effect", "complement" and "compliment", "discreet" and "discrete", "principal" and "principle".
- Do not confuse "imply" and "infer".
- The prefix "non" is not a word; it should be joined to the word it modifies, usually without a hyphen.
- There is no period after the "et" in the Latin abbreviation "et al.".
- The abbreviation "i.e." means "that is", and the abbreviation "e.g." means "for example".

An excellent style manual for science writers is .

### F. Authors and Affiliations

**The class file is designed for, but not limited to, six authors.** A minimum of one author is required for all conference articles. Author names should be listed starting from left to right and then moving down to the next line. This is the author sequence that will be used in future citations and by indexing services. Names should not be listed in columns nor group by affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization).

### G. Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include Acknowledgments and References and, for these, the correct style to use is "Heading 5". Use "figure caption" for your Figure captions, and "table head" for your table title. Run-in heads, such as "Abstract", will require you to apply a style (in this case, italic) in addition to the style provided by the drop down menu to differentiate the head from the text.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced.

### H. Figures and Tables

*H0a. 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.

Cuadro I
TABLE TYPE STYLES

| **Table Head** | **Table Column Head** | | |
|---|---|---|---|
| | ***Table column subhead*** | ***Subhead*** | ***Subhead*** |
| copy | More table copy[a] | | |

[a]Sample of a Table footnote.

Figura 1. Example of a 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

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.

## REFERENCIAS

Manendez, J., Salgado, L., Rendon, E., and Garcia, N. (1999). Motorway surveillance through stereo computer vision. In *Proceedings IEEE 33rd Annual 1999 International Carnahan Conference on Security Technology (Cat. No.99CH36303)*. IEEE.

Sage, K. and Young, S. (1998). Computer vision for security applications. In *Proceedings IEEE 32nd Annual 1998 International Carnahan Conference on Security Technology (Cat. No.98CH36209)*. IEEE.