

# GLOBAL JOURNAL

OF COMPUTER SCIENCE AND TECHNOLOGY: G

## Interdisciplinary

Computer Control System

Social Media Using Ratings

Highlights

Colon Cancer Prediction

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Discovering Thoughts, Inventing Future

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# Proposal of a Ranking Method for Comments in Social Media using Ratings of Comment Posters

By Keiichi Endo, Hiroshi Fujita, Dai Okano & Kaname Amano

*Ehime University, Japan*

**Abstract** - Many social media adopt a ranking method in which comments are ranked in the order of the number of ratings attached to each comment. However, this method has the disadvantage of ratings being concentrated on comments posted at an early stage. Even if there are high-quality comments posted later, most of them are buried without being noticed. This paper proposes a ranking method that considers not only the ratings for each comment but also the previous ratings the comment poster has received. The effectiveness of the proposed method is evaluated through a simulation. We demonstrate that with the proposed method, high-quality comments are displayed in the higher positions regardless of the posting period.

**Keywords** : *ranking method, comment, social media, rating, comment poster.*

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PROPOSAL OF A RANKING METHOD FOR COMMENTS IN SOCIAL MEDIA USING RATINGS OF COMMENT POSTERS

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# Proposal of a Ranking Method for Comments in Social Media using Ratings of Comment Posters

Keiichi Endo <sup>a</sup>, Hiroshi Fujita <sup>a</sup>, Dai Okano <sup>a</sup> & Kaname Amano <sup>a</sup>

**Abstract** - Many social media adopt a ranking method in which comments are ranked in the order of the number of ratings attached to each comment. However, this method has the disadvantage of ratings being concentrated on comments posted at an early stage. Even if there are high-quality comments posted later, most of them are buried without being noticed. This paper proposes a ranking method that considers not only the ratings for each comment but also the previous ratings the comment poster has received. The effectiveness of the proposed method is evaluated through a simulation. We demonstrate that with the proposed method, high-quality comments are displayed in the higher positions regardless of the posting period.

**Keywords** : ranking method, comment, social media, rating, comment poster.

## I. INTRODUCTION

In recent years, there has been explosive growth in the field of social media. Common examples include social networking services such as Facebook [1], video sites such as YouTube [2], social news websites such as Digg [3] and Yahoo! News [4], and shopping sites such as Amazon [5]. One major characteristic of these sites is that they allow users to post comments and provide ratings. Research on these trends and their effects is flourishing [6, 7]. With social media, a wide variety of communities have been formed and the actions of their users are influenced by the information provided by other users. For example, in the case of Amazon, users:

1. Visit the site and browse the product lineup,
2. View the comments and ratings for the products,
3. Purchase a product after researching comments and ratings of the products, and
4. In turn provide comments and ratings for the product.

These types of actions are seen in various social media [8]. It can be argued that the comments and ratings of other users have a greater influence on a user's decision than the product itself. In other words, on the Web, comments and ratings are extremely important elements. Therefore, social media sites provide content ranking on the basis of the comments and ratings attached to their content.

As the comments are written by ordinary users, some of them are suitable for reference by a large number of users, and some are not. In order to show users high-quality comments, social media attach ratings to not only the content but also the comments themselves, creating a comment ranking system based on ratings. With this ranking system, higher quality comments are displayed at a higher rank and viewed by a larger number of users.

Many social media adopt a ranking method in which comments are ranked in the order of the number of ratings attached to each comment, but this method has the disadvantage of ratings being concentrated on comments posted at an early stage (right after the content is created). This is evident in the comment ranking of Yahoo! News, where the posting times of many top comments for an article are close to the time the article was published. Even if there are high-quality comments posted later, most of them are buried without being noticed. Improving the reliability of comment ranking is vital to distinguish high-quality comments and to ensure that they are viewed by more people. Therefore, this study proposes a ranking method that considers not only the ratings for each comment but also the previous ratings the comment poster has received. The effectiveness of the proposed method is evaluated through a simulation.

This paper is organized as follows. In section II, we outline several researches related to comment ranking. In section III, we describe existing methods of comment ranking, which are later compared with the proposed methods in the simulation. Section IV explains the proposed methods and section V examines the simulation results. Finally, section VI concludes this paper.

## II. RELATED WORK

Chiao-Fang et al. [9] have attempted to resolve the problems of comment ranking using regression analysis. Using a model for the analysis with support vector regression (SVR), characteristics such as volume of information and characters are filtered from the comment text data and ranked according to the normalized discounted cumulative gain (NDCG). In addition, analysis is performed on the basis of not only

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each characteristic but also a combination of several characteristics. SVR enhances support vector machine (SVM) learning to deal with the issue of regression [10]. SVM is one of the learning models that contrive to output highly discriminatory features in relation to unlearned data. NDCG is an index that rates compatibility with related items through several steps. The results show that learning ranking models using SVR have higher compatibility than existing methods such as random ranking. In addition, a ranking method known as boosted ranking has been proposed. This method calculates the average and standard deviation of the number of ratings for comments whose order of posting is the same among the comments attached to the entire content and uses them to revise the ranking. For example, if a comment is the tenth one posted for a certain content item and a higher number of ratings have been collected than the average number of ratings for the tenth posted comments for all content items, this comment is judged to be of good quality and moved to a higher rank. Conversely, if it has a lower number of ratings than the average number, it is moved to a lower rank.

Onkar et al. [11] have developed a ranking method involving dynamic learning that considers comment rankings as a collection of objects and optimizes the edges that exist between the objects using Hodge analysis. The edge relationships between comment nodes (objects) are expressed using a matrix and the ranking is achieved by resolving the optimization problem defined from this. Compared with existing methods using objects, the calculation time is greatly improved and the method has a high level of compatibility.

Using NDCG, Xuanhui et al. [12] have evaluated the compatibility of rankings achieved on the basis of indices such as comment length, time passed since the post, and the ratio of positive ratings to the total ratings. Furthermore, the results of testing each index using Kendall's rank correlation coefficient showed that rankings created on the basis of the ratio of positive ratings achieved the highest level of compatibility.

Martin et al. [13] have proposed the similarity-reduced explicit semantic analysis method. This method identifies comments that are most closely related to the article content, from the comments attached to an article. Adriano et al. [14] have proposed a comment selection method that employs automatic machine learning to pick out high-quality comments from a group of comments.

The above studies increased the reliability of rankings mainly by analyzing the content (text data) of the comments. In contrast, our study aims to improve the ranking by using the previous ratings of the comment poster. The proposed method can be applied to not only text comments but also comments made in the form of images, voice, or video.

### III. EXISTING METHODS

In this section, we describe two existing ranking methods that will later be compared with the proposed methods in the simulation.

#### a) *Ranking method based on the ratings for comments*

The ranking method based on the ratings for comments is used in various services such as the comment system of Yahoo! News and customer reviews of Amazon. The way the rankings are created differs according to the service, but the mechanism is basically that comments that have collected a large number of positive ratings are displayed at higher ranks. However, this method has an issue in that ratings are concentrated on comments posted at an early stage and high-quality comments posted at a later stage get buried without attracting ratings. This is because as there are more opportunities for comments posted at an early stage to be displayed at a higher rank, there are also more opportunities for them to be rated. As it is difficult for comments posted at a later stage to be displayed, the number of times they are viewed by users is fewer, and hence, there are fewer opportunities for them to be rated.

Many services allow users to attach either positive or negative ratings. However, this study only deals with positive ratings, and the more ratings the comment has, the higher in rank it will be displayed. The previously described differential in rating opportunities depending on the posting period is a problem unrelated to whether negative ratings are dealt with or not.

#### b) *Boosted Ranking*

The boosted ranking method [9] makes improvements in relation to the issues discussed in the previous subsection. This ranking method uses the average and standard deviation of the number of ratings for comments posted in the same order (among comments posted for the entire content) to revise the ranking. In concrete terms, the rating value for a comment is calculated according to the following formula:

$$v = e + \frac{e - \bar{e}}{\sigma} \cdot e,$$

where  $e$  is the number of ratings for the comment, and  $\bar{e}$  and  $\sigma$  are the average and standard deviation of the number of ratings, respectively, for all comments whose order is the same as that of the posted comment. The comments are then displayed in the order of their rating values.

With the boosted ranking method, high-quality comments from a later posting period can be pushed up higher in the ranking. However, as there are fewer opportunities to rank the comments from a later posting period even if they are high-quality comments, it remains difficult for them to attract a large number of ratings. As a result, the effectiveness of the revision is limited.

#### IV. PROPOSED METHODS

In this section, we describe the proposed ranking methods. Hereafter, a user is referred to as an agent.

##### a) Ranking method based on the rated ratio of agents

With the existing ranking methods explained in the previous section, as ratings are concentrated on the comments posted at an early stage, comments that are not of high quality may be displayed at a higher rank. This is because as there are many opportunities for comments posted at an early stage to be rated, even comments that are not of high quality can attract a large number of ratings. As there are fewer opportunities to view comments posted at a later stage even if they are high-quality comments, it is difficult for them to attract a large number of ratings. We propose a ranking method in which by reflecting the previous ratings of the agent, comments posted by "superior" agents with high ratings are displayed at a higher rank even if they are posted at a later stage. In this method, an agent is evaluated on the basis of the rated ratio of the agent, which is obtained by dividing the total number of ratings obtained on all previous comments posted by this agent by the total number of times those comments are viewed.

With this ranking method, as the ranking is created on the basis of not the ratings obtained by each comment but the ratings of the agent who posted the comment, it is possible to display the comments posted by superior agents regardless of the posting period. However, this method has a disadvantage that low-quality comments posted by an agent with high ratings continue to be displayed at a higher rank.

##### b) Ranking method based on the rated ratio of agents and comments

In this subsection, we propose a ranking method that considers not only the rated ratio of the agent posting the comment but also the rated ratio of each comment. This ranking method does not order comments on the basis of a specific rating value but rather calculates the ranking position of a comment when it is posted or obtains a rating, and places the comment in that position.

The initial ranking position of a comment ( $r_{\text{initial}}$ ) when it is posted is obtained using the following formula:

$$r_{\text{initial}} = \max[1, \lfloor (r_{\text{bottom}} + 1) \cdot \{\delta + (1 - \delta)(1 - \hat{p}_{\text{agent}})\} \rfloor].$$

Here,  $r_{\text{bottom}}$  represents the total number of comments attached to the content at the point before the comment was posted (namely, the ranking position of the lowest ranked comment) and  $\hat{p}_{\text{agent}}$  is the rated ratio of the agent posting the comment. Furthermore,  $\delta (\leq 1)$  is a non-negative constant defined in advance.

In this paper, this is set to 0.2. The posted comment is placed in the ranking position  $r_{\text{initial}}$  obtained using the above formula and all comments that were at position  $r_{\text{initial}}$  or below are dropped by one position (Figure 1). In this way, as comments posted by superior agents are displayed at a comparatively higher rank immediately after being posted, there are sufficient opportunities to rate them even if they are posted at a later stage.



Figure 1 : Insertion of a newly posted comment

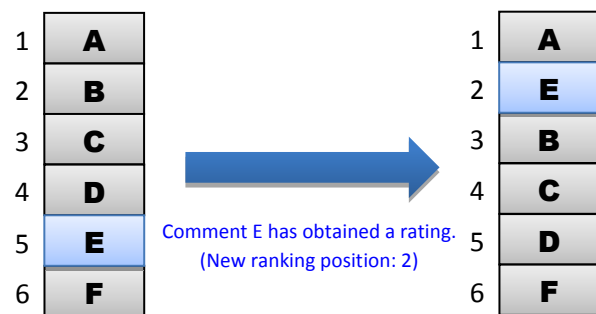


Figure 2 : Movement of a comment that has obtained a rating

When a comment obtains a rating, the ranking position cap  $r_{\text{cap}}$  is first calculated using the following formula:

$$r_{\text{cap}} = \max[1, \lfloor r_{\text{bottom}} \cdot \alpha(1 - \hat{p}_{\text{comment}}) \rfloor],$$

where  $\alpha (\leq 1)$  is a non-negative constant defined in advance and  $\hat{p}_{\text{comment}}$  expresses the rated ratio of the comment itself.

The new ranking position  $r_{\text{eval}}$  for the comment that has obtained the rating is then calculated using the following formula and the comment is moved to that position (Figure 2).

$$r_{\text{eval}} = \max[r_{\text{cap}}, \lfloor r_{\text{cap}} + (r_{\text{current}} - r_{\text{cap}}) \cdot \beta(1 - \hat{p}_{\text{agent}}) \rfloor],$$

where  $\beta (\leq 1)$  is a non-negative constant defined in advance and  $r_{\text{current}}$  represents the current position of the comment.

With this ranking method, the higher the rated ratio of the agent posting a comment is, the easier it is for the comment to be displayed at a higher rank. However, as a ranking position cap is set on the basis of the rated ratio of the comment itself, a low-quality comment posted by a superior agent is prevented from being continually displayed at a higher rank.



## V. SIMULATION

To evaluate the effectiveness of the proposed ranking method, we performed a simulation using a program created in C++. In this section, we explain the simulation conditions and then present our observations based on the results.

### a) Simulation Conditions

The simulation in this study first generates 30 content items (equivalent to articles in the case of a news site). In its initial state, no comments are attached to those content items. The simulation then generates 300 agents and randomly sets agent parameters in the range  $[0.2, 0.8]$  to those agents. The higher this agent parameter, the better the agent and the greater the probability of a high-quality comment being posted.

In this simulation, time units are referred to as "turns." A content browse interval is set at random between 1 and 10 turns for each agent. Each agent browses the contents, attaches ratings to the comments for the contents, and posts comments in the following procedure every time the content browse interval passes.

1. The agent randomly selects a content item to browse and views the comments attached to the content. At this time, the comment at a ranking position of  $r$  has a  $0.99^r$  probability of being viewed. The agent attaches a rating to the viewed comment with a probability of  $p_{\text{comment}}$  set for that comment.
2. The agent posts a comment with a probability set randomly in advance within the range  $[0, 1]$ . For the comment, the comment parameter  $p_{\text{comment}}$  equivalent to the probability of the comment obtaining a rating is set randomly within the range  $[p_{\text{agent}} - 0.2, p_{\text{agent}} + 0.2]$ . Here,  $p_{\text{agent}}$  is the agent parameter for the agent posting the comment. However, with a certain probability (referred to as an exceptional posting probability), the comment parameter is set at random within the range  $[0, 1]$ , regardless of  $p_{\text{agent}}$ . The exceptional posting probability is set to a fixed value through a simulation and when it is set to a positive value, a superior agent may post low-quality comments.
3. The agent then moves to another randomly selected content item with a probability randomly set for each agent in advance within the range  $[0, 1]$  and repeats the procedure from step 1. When the agent decides not to move, the agent terminates the procedure in the current turn.

The simulation is performed according to the procedure above until 600 turns have been completed.

### b) Results and observations

In this section, we present the results of the simulation and make some observations. Hereafter, the

ranking method based on the ratings for comments is referred to as Simple, the boosted ranking method is referred to as Boost, the ranking method based on the rated ratio of agents is referred to as Proposed-A, and the ranking method based on the rated ratio of agents and comments is referred to as Proposed-AC. The simulation is performed ten times under the same condition and the average of the results is plotted in a graph.

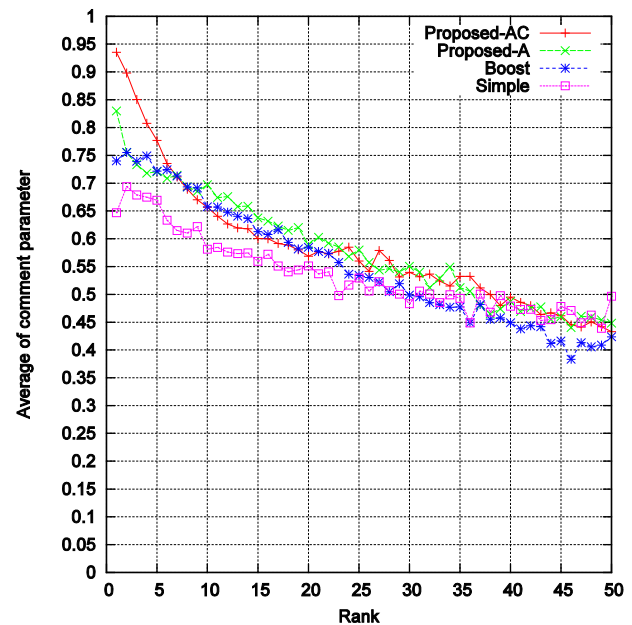


Figure 3: Average of comment parameter for each method

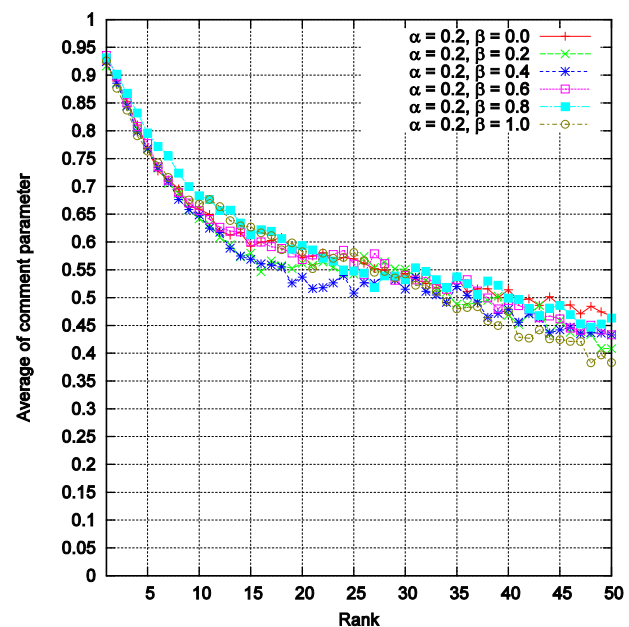


Figure 4: Comparison of comment parameter averages with changing  $\beta$  in Proposed-AC ( $\alpha = 0.2$ )

In Figure 3, we compare each method in regard to the average value of the comment parameter set for the comments in each of the top 50 positions for all the

content items. In the case of Proposed-AC, the parameter values for  $\alpha$  and  $\beta$  are 0.2 and 0.6, respectively. Proposed-AC demonstrates the highest values for the average of comment parameter in the top ranking positions, which implies that Proposed-AC is successful in displaying high-quality comments at the top.

Figure 4 shows a graph for Proposed-AC, comparing the average of comment parameter where  $\alpha$  is fixed at 0.2 and  $\beta$  is varied. Even where  $\beta$  is varied, no significant differences emerge in the top four rankings, but from the fifth position, the differences begin to increase. The average of comment parameter for the first position is the highest when  $\beta = 0.6$ .

Figure 5 shows a graph for Proposed-AC, comparing the average of comment parameter where  $\beta$  is fixed at 0.6 and  $\alpha$  is varied. From these results, we can see that the value of  $\alpha$  has a major influence on the quality of comments displayed in the top ranked positions. The average of comment parameter for ranking positions 1 and 2 are the highest when  $\alpha = 0.2$ , but from the third position, the best results are seen when  $\alpha = 0.8$ . From this, we can see that it is better to set  $\alpha = 0.2$  when we emphasize the quality of the comments on the first and second positions, and  $\alpha = 0.8$  when the aim is to generally display high-quality comments at higher rankings from the third position.

Figure 6 shows a graph for Proposed-A and Proposed-AC, comparing cases where the exceptional posting probability (EX) is set at 0.2 and 0.0. In the case of Proposed-A, the average of comment parameter for the top rankings is much lower when EX is set at 0.2 than when it is set at 0.0. This is because with Proposed-A, low-quality comments posted by superior agents continue to be displayed in the top ranking positions. Since Proposed-AC considers the rated ratio of each comment in addition to the rated ratio of the agent, the quality of the top comments does not decrease even where EX is set at 0.2.

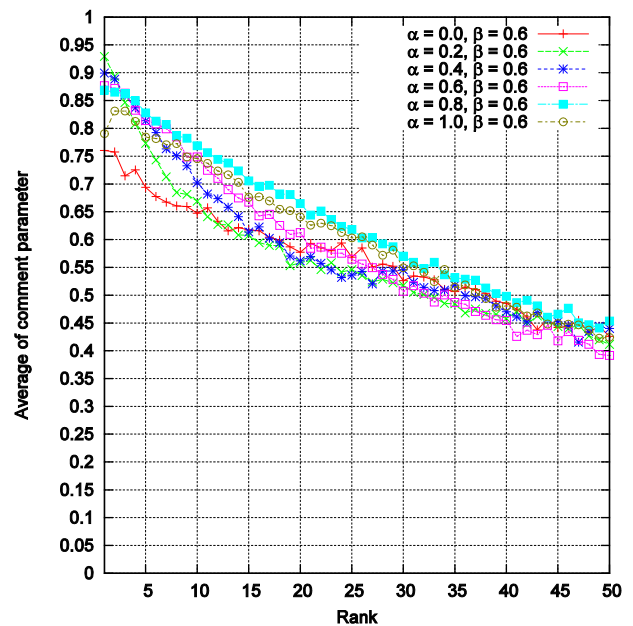


Figure 5 : Comparison of comment parameter averages with changing  $\alpha$  in Proposed-AC ( $\beta = 0.6$ )

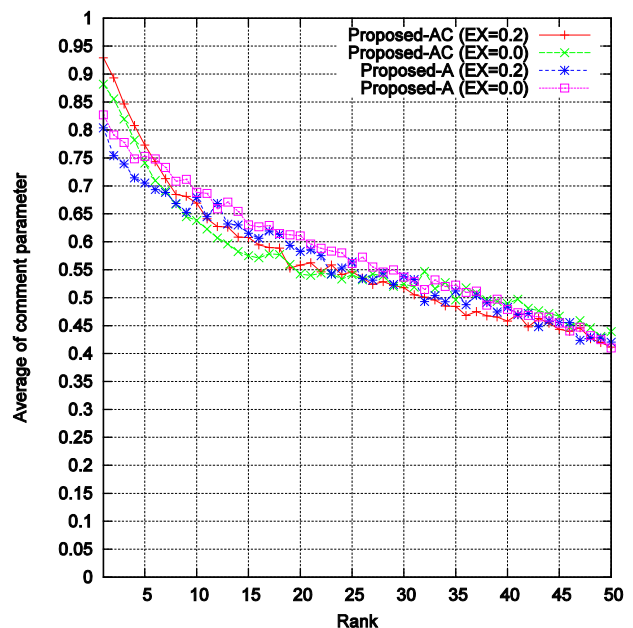


Figure 6 : Comparison where exceptional posting probability (EX) is set at 0.2 and 0.0

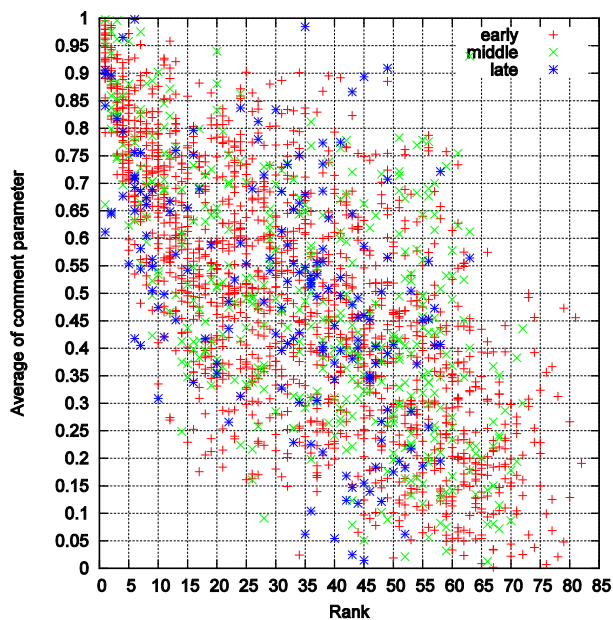


Figure 7 : Comment distribution with posting period for Proposed-AC (EX=0.2)

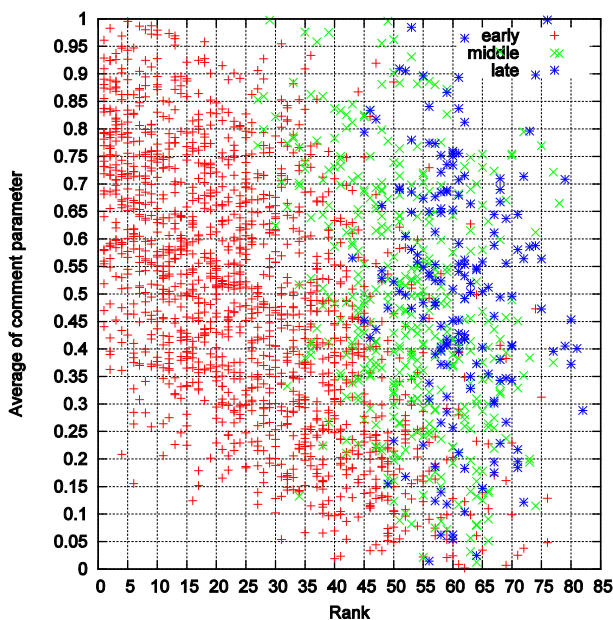


Figure 8 : Comment distribution with posting period for Simple (EX=0.2)

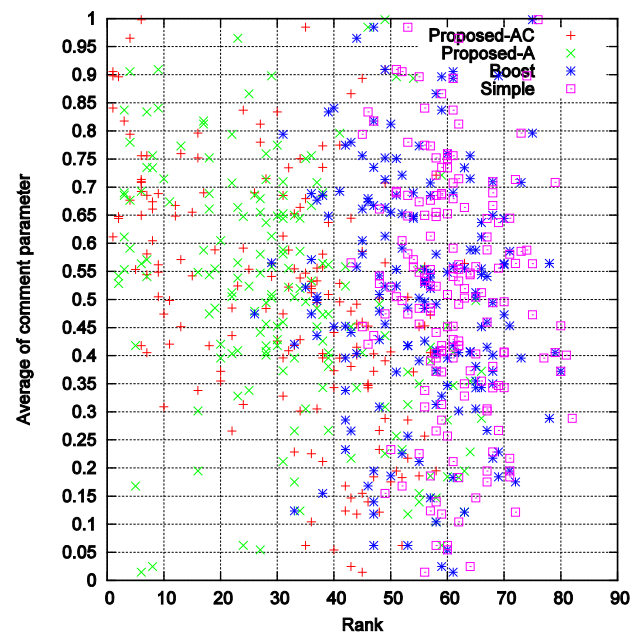


Figure 9 : Distribution of comments posted during the late period (EX=0.2)

Figure 7 demonstrates the comment distribution with the posting period for Proposed-AC, where EX is set at 0.2. The 600 turns in the simulation are divided into three, with the comments posted within the first 200 turns being referred to as “early,” those posted during the next 200 turns as “middle,” and the final 200 turns as “late.” From this figure, we can see that the ranking order for Proposed-AC is significantly independent of the comment posting period and high-quality comments are displayed in the top ranking positions even when they are posted at a later period.

Figure 8 demonstrates the comment distribution with the posting period for Simple, where EX is set at 0.2. In the case of Simple, high-quality comments posted at a later period linger around the lower rankings. Most comments in the higher rankings are those posted at an early stage.

Figure 9 compares the four ranking methods in terms of the distribution of comments posted during the late period. EX is set at 0.2. With Simple and Boost, most comments posted during the late period stay in the lower ranked positions. In contrast, with Proposed-A and Proposed-AC, high-quality comments posted in the late period are displayed in the higher ranked positions. Since Proposed-A only uses the rated ratio for the agent, low-quality comments are also displayed in the higher ranks. With Proposed-AC, the rated ratio of the comments is also considered, and hence, only high-quality comments are displayed in the higher rank positions.

## VI. CONCLUSION

As the ranking order for existing ranking methods is significantly dependent on the comment

posting period, there is an issue in that the higher ranked positions contain a mixture of high- and low-quality comments. To resolve this issue, this study has proposed a ranking method based on the previous ratings of the agent posting the comment. Furthermore, we have proposed a ranking method that also considers the rating of the comment itself as well as the agent rating. We have demonstrated that with the proposed method, high-quality comments are displayed in the higher positions regardless of the posting period. We have also demonstrated that by considering the ratings of both the agent and the comment, it is possible to prevent lower quality comments posted by superior agents from being continually displayed in higher ranking positions.

In the future, we plan to create a web application using the proposed method, and thereby examine its practicability.

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## Camilo and the Construction of the Novel

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*Abstract* - From his very first novels, CamiloCasteloBranco sought to establish secure codes which, though appearing to subvert implicit rules, were in fact meant to safeguard the legitimacy of his narrative discourse while at the same time giving the impression of engaging readers in light conversation. Thus, the opposition at play between what is true and what appears to be true, as well as between the forced linearity of reading and discursive transgression take on a relevant role in the work of the author from Seide. This tension promotes the construction of novels that constantly seem to question the validity of the diegetic level when compared to the principles revealed in para texts or within the plot. Camilian discourse is thus ironically structured around a continuous ambiguity between saying and doing, while its ingredients unequivocally direct the reader towards the interests of the narrative. Aníbal Pinto de Castro (1976: 47) had already stressed that this process of manipulation and the consequent excess of justification are indeed common in CamiloCasteloBranco's narrative and they create an ironic overtone which is hard to ignore. When Camilo makes explicit reference to narrative construction processes, he is implicitly alluding to cultural codes that readers are supposed to know and which they will easily identify. Readers are thus in a position to better understand the 'game' they are being invited to play and which works in two ways: while seemingly legitimizing narrative freedom, it actually reveals observance of the canon.

*GJCST-G Classification: D.4.6*



CAMILO AND THE CONSTRUCTION OF THE NOVEL

*Strictly as per the compliance and regulations of:*



# Camilo and the Construction of the Novel

Maria De Fátima Marinho

## I. INTRODUCTION

From his very first novels, CamiloCasteloBranco sought to establish secure codes which, though appearing to subvert implicit rules, were in fact meant to safeguard the legitimacy of his narrative discourse while at the same time giving the impression of engaging readers in light conversation. Thus, the opposition at play between what is true and what appears to be true, as well as between the forced linearity of reading and discursive transgression take on a relevant role in the work of the author from Seide. This tension promotes the construction of novels that constantly seem to question the validity of the diegetic level when compared to the principles revealed in para texts or within the plot. Camilian discourse is thus ironically structured around a continuous ambiguity between saying and doing, while its ingredients unequivocally direct the reader towards the interests of the narrative. Aníbal Pinto de Castro (1976: 47) had already stressed that this process of manipulation and the consequent excess of justification are indeed common in CamiloCasteloBranco's narrative and they create an ironic overtone which is hard to ignore. When Camilo makes explicit reference to narrative construction processes, he is implicitly alluding to cultural codes that readers are supposed to know and which they will easily identify. Readers are thus in a position to better understand the 'game' they are being invited to play and which works in two ways: while seemingly legitimizing narrative freedom, it actually reveals observance of the canon. If we consider irony to be an essential criterion for understanding discourse and all its senses (Ferraz, 1987: 34), it is easy to recognize that we can only attain the real meaning of a text by decoding its underlying data, i.e., all the implications echoing in it (Hamon, 1996: 25). This is a fascinating process, as we shall attempt to demonstrate below. By attributing a major role to ironic references and thus 'institutionalizing' the rupture (Ferraz, 1987: 54) with tacit knowledge, the narrator in Camilian novels seeks to distance himself from his own discourse (Ferraz, 1987: 42). Posing as an editor or mere organizer of other people's texts, which he claims to have come across by chance (Ferraz, 1987: 65-66), the narrator uses artifices that effectively promote this distance. The change from an apparently serious and neutral register (narrating what others have written or recounted) (Ferraz, 1987: 70 and 129) to an

ironic and engaging one helps the author project himself onto the narrative scene through comments, assertions and position statements (Ferraz, 1987: 75). The sum of these constitutes a narrative level that is just as fascinating as the level of the plot and characters.

The following review of some of CamiloCasteloBranco's novels shows that the meta language employed should be given two distinct interpretations: a literal, flawed and imperfect one; and an ironic one, which plays with the implied canons and reveals the differences between what is written and what is actually practised.

Camilo's first novel, *Anátema* (Anathema) (1851), shares many of the features of serial fiction (astounding action and an uninterrupted succession of exciting events) with *Mistérios de Lisboa* (Mysteries of Lisbon) (1854) and *Livro Negro de Padre Dinis* (Black Book of Father Dennis) (1855). Note that the very first line of *Anatema* appeals to the implied knowledge of an audience who is used to reading novels. The opening line, "Este começaporondeacabamos outros" ["This starts where others end"]<sup>1</sup> (CasteloBranco, 2003: 29), followed by the narration of the marriage between two of the characters, implies that the reader is well of aware of the fact that marriage is a novel's usual finale. However, this simple statement is all but naive, as the underlying irony has much deeper implications than what is explicitly declared and thus directs the readers' attention towards other aspects and characters. The canon, which experienced readers cannot forget, makes them move away from the focus of attention and results in an opposite reading of the initial sentence. An identical phenomenon happens in the chapter "Prevenções" (Preventions) in *Mistérios de Lisboa*, when the narrator gives a definition of 'novel', states that the book does not belong to that category, and then proceeds to hint that he is merely complying with the topic of truthfulness, so dear to the Romantics. The perversity of the artifice intensifies the irony of those assertions and makes it easier to read between the lines:

Tentar fazer um romance é um desejo inocente. Baptizá-lo com um título pomposo é um pretexto ridículo. Apanhar uma nomenclatura, estafada e velha, insculpi-la no frontispício de um livro, e ficar orgulhoso de ter um padrinho original,

<sup>1</sup> The vast majority of CamiloCasteloBranco's novels have not been translated into English. Myfairly literal translations of the excerpts quoted in this paper are simply meant to function as "windows" onto the original.

isso, meus caros leitores, é uma patranha de que eu não sou capaz. (...)

Antes eu gostava muito de ter nascido na terra dos homens verdadeiros, porque, peço me acreditem, que os romances são uma enfiada de mentiras (...)

Não senhor. Este romance não é um romance: é um diário de sofrimentos, verídico, autêntico e justificado. (Castelo Branco, 1969b: 1st vol.31-32)

[Trying to write a novel is an innocent wish. Baptising it with a pompous title is a ridiculous pretext. Taking an old and decrepit name and engraving it in the frontispiece of a book, and then feeling pride in having an original godfather, all this, my dear readers, is a trick I am not capable of. (...)]

I would rather have been born in a land of truthful men, because, I beg you to believe me, novels are a string of lies. (...)

No Sir. This novel is not a novel: it is a diary of suffering; truthful, authentic and justified.]

The same happens when, in "Advertência" (Warning)(the section preceding Chapter I in *Livro Negro de Padre Dinis*), we read that "O Livro Negro não foi escrito para ser publicado em forma alguma, e muito menos em forma de romance." (Castelo Branco, 1969b: 1st vol.5) [The *Black Book* was not written to be published in any form whatsoever, much less in the form of a novel]

Various codes are alluded to in these lines, from the superficial rejection of story-telling to the conventional definition of 'novel'. The author/narrator assumes that the readers (or narratees) have the necessary knowledge that will make them believe in the narrator's artifices. This is the only way we can accept that, in *O Romance de um Homem Rico* (The Romance of a Rich Man), the narrator finds the crucial ingredients to capture the reader's attention, thus establishing a sort of fundamental rules, without which there could be no novel worthy of that name:

O tocante era ir ela nos braços das esposas do Senhor para cima, e ele ficar cá fora, se não sem sentidos, ao menos declamando um quarto de hora, cair afinal extenuado nos braços dos amigos. Isso sim, era uma passagem que bastava à reputação da novela, e a venderem-se mais alguns milhares de volumes. Escrever as cousas como elas se passam no mundo, como não as vemos por aí! Então é melhor não dar cópias da realidade. (...) O romance (...) Se não nos maravilha, enfada-nos. (Castelo Branco, 1984b: 3rd vol.85).

[It was touching to see her go up in the arms of the Lord's brides, whilst he remained out there, not exactly unconscious, but declaiming for a quarter of an hour until he fell in his friends' arms at last. That passage in the novel was indeed enough to make its reputation and to sell some more thousands of copies. Writing about things as they actually happen in the word, not as we see them! So it is best not make a copy of reality. (...) The novel (...), if it does not surprise us, bores us.]

The beginning of *O Que Fazem as Mulheres* (What Women Do) should be read along the same lines:

É uma história que faz arrepiar os cabelos.

Há aqui bacamartes e pistolas, lágrimas e sangue, gemidos e berros, anjos e demónios.

É um arsenal, uma sarrabulhada, e um dia de juízo! Isto sim que é romance. (Castelo Branco, 1967c: 15)

[This is a story that makes your hair stand on end.

There are blunderbusses and pistols, blood and tears, whining and screaming, angels and demons.

It is an armoury, it is turmoil and doomsday!

This is what a novel should be like.]

The same is also true of the following paragraph, from *Um Homem de Brios* (A Man of Pride): "(...) o romance, que visar à exactidão dos costumes, é frio, e não pode acabar bem. Romance sem sarrabulho é coisa triste como o dezembro em casa do lavrador que não matou cevado." (Castelo Branco, 1967a: 8) [(...) a novel which seeks to accurately portray customs is cold and cannot have a happy ending. A novel without turmoil is as sad as the month of December in the home of a farmer who has not killed his porkers.]

The concept of novel emerging from all these assertions seems to be more in line with serial fiction than with the romance, of which *O Amor de Perdição* (Doomed Love) is the perfect example. However, some distinctions can already be detected in the three definitions quoted above. The second and third definitions (from 1858 and 1856 respectively) refer to works of fiction whose intricate plots are based upon a succession of adventurous incidents. The first, although still recognizing the importance of extraordinary events, accepts the role played by all-consuming passions and rampant feelings rather than by continuous and surprising actions.

Camilodoes not only define 'the novel' but also takes great care to show what a novel must not be, although he may in fact practise the opposite of what he preaches in the course of the same novel. In *Cenas da Foz* (Scenes from Foz), the narrator-character writes: "Eu, João Júnior, não sofro os romancistas que pulam de um capítulo para outro, de modo que o romance tanto faz principiá-lo de trás para diante como de diante

para trás.” (CasteloBranco, 1983: 794). [I, JoãoJúnior, cannot stand the novelists who jump aimlessly from one chapter to another in such a way that it makes no difference to start reading the novel from the end or from beginning.]

It is obvious that this mutability of scenes does not seem easy in nineteenth-century fiction, especially since the plot required coherence, linearity and a clear sequencing of events. Nevertheless, in *O Que Fazem Mulheres* (What Women Do), before Chapter land after two chapters entitled “A TodososqueLerem” (To all readers) and “A Alguns dos queLerem” (To Some Readers), there is a chapter called “CapítuloAvulso” (Loose Chapter), whose subtitle is “Para sercolocadoonde o leitorquiser” (To be placed where the reader wishes). This chapter introduces a character who could in fact be introduced somewhere else in the novel. There is indeed a certain irony in the apparent freedom with which the narrator manipulates discourse so as to convey a desired piece of information at a specific moment in the diegesis. This demonstrates a total mastery of narrative techniques, as evidenced in a paragraph taken from the conclusion of the same novel, which describes the clichés that appear in works of the same genre:

O leitor já sabe como no teatro se recupera o juízo. Se a mulher é doida, rigorosamente desgrenhada, esfrega os olhos, atira com as madeixas para trás, e dá fricções secas às fontes com frenesi; se, homem, abre a boca, espanta os olhos, soleva o peito em arquejantes haustos, despede o grito agudo obrigado a ambos os sexos, e está pessoa de juízo, capaz de casar, que é quase sempre a pior das doidices em que os autores fazem cair os seus doidos, restaurados para a razão. (CasteloBranco, 1967c: 188-189).

[The reader already knows how theatrical characters come to their senses. Crazy, dishevelled women rub their eyes, throw their hair back, and stroke their temples in a frenzy; men gape, open their eyes wide, heave their chests and let out the piercing cry which is obligatory for both sexes; and suddenly they're sane and discerning persons, ready for marriage, which is almost always the worst of all the crazy actions writers force their crazy characters into, when these have been restored to sanity.]

The presence of stereotypes leads to sentences such as “Osteus romances do meioemdianteadivinham-se” (CasteloBranco, 1967c: 143) [Your novels are predictable from their middle to the end], which allude to the predictability arising from the lack of the surprise factor or unusual action. It is evident that all these statements must be put into perspective, insofar as the theory of the novel which is implicitly taking shape ends

up being inoperative and incoherent. In the end, the confrontation between theory and practice only leads to doubt, and the narrator, in Guimarães Rosa's words, always tells “mentiraporverdade” (Rosa, 1972: 35) [lies instead of truth]. Thus, what is presented as legitimate is generally what should be understood as ironic. The fictitious hesitation between what is and what is not a novel also applies to Camilo's historical fiction as well as to his various assertions about the plausibility of his texts. In the prologue to *Luta de Gigantes* (Fight of Giants), one can read: “Não lhe chamo romance, porque é história autenticada por documentos; não lhe chamo história, porque seria presunção imprópria da minha humildade aforar-me em fidalguias tamanhas.” (CasteloBranco, 1990: 799) [I don't call it novel, because the story is based on authentic documents; I don't call it history, because it would be too presumptuous on my part to arrogate the right to such a noble achievement.] We know that it is frequently difficult to include Camilo's fiction in the sub-genre known as historical novel, as he is incapable of giving a rigorously accurate account of the events and incidents that he wants to explore to secure his readers' interest in the plot. His historical novels are mainly Camilian novels (Marinho, 1999), in which historical characters coexist with fictitious ones in carefully crafted environments, where they accomplish feats that cannot be historically verified.

The notion of novel that has been outlined above, albeit ironic and controversial, is still the one that prevails in the ‘Foreword’ to the second edition of *Amor de Perdição*, which appeared in 1863, one year after the first edition. In this text, Camilo considers the reasons for his novel's success, and predicts how this success will evolve over time:

Este livro, cujo êxito se me antolhava mau, quando eu o ia escrevendo, teve uma recepção de primazia sobre todos os seus irmãos. Movia-me à desconfiança ser ele triste, sem interpolação de risos, sombrio, e rematado por catástrofe de confranger o ânimo dos leitores, que se interessam na boa sorte de uns, e no castigo de outros personagens. (...)

É grande parte neste favorável, embora insustentável juízo, a rapidez das peripécias, a derivação concisa do diálogo para os pontos essenciais do enredo, ausência de divagações filosóficas, a lhanza da linguagem e desartifício das locuções. (...)

Estou quase convencido de que o romance, tendendo a apelar da iníqua sentença que o condena a fulgir e apagar-se, tem de firmar sua duração em alguma espécie de utilidade, tal como o estudo da alma, ou a pureza do dizer. (CasteloBranco, undated a:10-11).



[This book, which I expected to be scarcely successful when I was writing it, was in fact much more fortunate than its fellows. My expectation was based on the fact that it is a sad book, with no laughter, sombre and filled with tragedies that undermine the morale of the readers, who are interested in the good fortune of some characters and in the punishment of others. (...)]

The readers' favourable reception is in great part due to fast-paced adventures, concise dialogues at crucial moments in the plot, absence of philosophical musings, simplicity of the language and linearity of the sentences. (...)

I am almost convinced that the novel, trying to escape the cruel fate that condemns it to glow and die out, has to derive its longevity from a measure of usefulness, such as the study of the soul, or the pureness of language.]

The latter assertion seems to find an echo at the beginning of chapter two of *Amor de Salvação* (Love of Salvation), which was published the following year, 1864. Here the narrator mentions serious writing, predicting that it would not be very popular:

*Escritor sério!* Quando se agarra a fama pelas orelhas, e a gente a obriga a dar pregão da nossa seriedade de escritor, a glória vai procurar os nossos livros sérios às estantes dos livreiros, e lá se fica a conversar delícias com as brochuras imóveis, enquanto a traça não dá neles e nela. (CasteloBranco, undated b: 27).

[*Serious writer!* When we take fame by the horns and force it to proclaim we are serious writers, glory looks for our serious books on the booksellers' shelves, and there it stops to make pleasant conversation with the immobile volumes until bookworms bore away at them and at it.]

The frequent contrast between the proffered principles and the proposed plots makes the comparison between assertions and their underlying meaning even more enticing. When, in the 1870s, Camilo was compelled to adopt new aesthetic models, he did so, once again, in an ironic manner, in the preface to both the fifth edition of *O Amor de Perdição*, dating 1879, and the second edition of *Eusébio Macário*, as well as in the section called "Advertência" (Warning), in the same novel. In the first novel, the author declares that he is against the novel he published seventeen years earlier:

*O Amor de Perdição*, visto à luz eléctrica do criticismo moderno, é um romance romântico, declamatório, com bastantes aleijões líricos, e umas ideias celeradas que chegam a tocar no desaforo do sentimentalismo. (...) O bom senso

público relê isto, compara com aquilo, e vinga-se barrufando com frouxos de riso realista as páginas que há dez anos alijarava com lágrimas românticas. (CasteloBranco, undated a: 113-114).

[*Doomed Love*, examined under the electric light of modern criticism, is a romantic and declamatory novel, filled with lyrical afflictions and some atrocious ideas that border on sentimental arrogance. (...) Sensible readers re-read this novel, compare it with that, and take revenge by sprinkling with realistic laughs the same pages they would sprinkle with their romantic tears ten years ago.]

The obvious irony of this passage is matched in the preface to the second edition of *Eusébio Macário*, when Camilo makes a friend say the following:

(...) tens de pôr a fisiologia onde os românticos punham a sentimentalidade: derivar a moral das bossas, e subordinar à fatalidade o que, pelos velhos processos, se imputava à educação e à responsabilidade.

[(...) you have to use physiology where the Romantics used sentimentality; you have to derive morals from blows and ascribe to fatality that which used to be regarded, in the old days, as the result of education and responsibility.]

Hethengoeson to remark: "Compreendi, e achei que eu, há vinte e cinco anos, já assim pensava, quando Balzac tinha em mim o mais inábil e ordinário dos seus discípulos." (CasteloBranco, 1958: XII) [I understood, and I concluded that I used to think in such a fashion twenty-five years ago, when I was one of the most unskilled and most ordinary of Balzac's disciples.]

This change in the narrative construction corresponds to an alteration in the aesthetic canon, though this does not actually imply a radical transformation. In fact, on a deep structural level, the metaliterary process has not changed much since the first novels and the ironic problematisation of the structuring and conception of the novel remains.

After having analysed the passages that make generic allusions to the narrative process, it is now time to concentrate on Camilo's specific references to style. In the introduction to *Anátema*, the author characterizes the so-called historical novel as "uma ginástica de contorções dificultosas de estilo, opulenta de pontinhos, e *ahs!* e *ohs!*" (CasteloBranco, 2003: 25) [a set of difficult contortions of style, studded with suspension points and *ahs!* and *ohs!*], and says that for the common people, this type of novel should be "quimérico, híbrido e mentiroso" [chimeric, hybrid and filled with lies] (CasteloBranco, 2003: 27). In doing so, he wants to move away from a far too restrictive school and declare his independence, even though the reader feels that his novels contain some of the very elements



which he claims to be rejecting. This is what happens in *Cenas da Foz*, when he inveighs against serial novelists:

- Folhetinistas! Que são folhetinistas?
- Folhetinistas são uns pataratas que não-de vir daqui a vinte anos, trazidos em uma nuvem de gazetas.» (CasteloBranco, 1983: 767)

[ - Serial novelists! What are serial novelists?

Serial novelists are fools who will return in twenty years, born by a cloud of gazettes.]

The irony in the lines quoted above suggests the ever present ambiguity in Camilian novels, as can also be inferred from the following excerpt from “Na segundaedição” (In the second edition), added to *Doze CasamentosFelizes* (Twelve Happy Marriages):

Cuidou o autor que este livro, à conta da sua muita simpleza e naturalidade, desagradaria ao máximo número de pessoas, que aferem, ou dantes aferiam o quilate de uma obra de fantasia, consoante os lances surpreendentes e extraordinários. Não foi assim. A época é outra, e melhor. O maravilhoso teve sua voga, seu tempo, e sua catástrofe.(CasteloBranco, 1969a: 25).

[The author took great care that this book, due to its great simplicity and naturalness, would displease the largest number of people, who judge, or used to judge, a work of the imagination on the basis of its surprising and extraordinary adventures. But that did not happen. We now live in a different and better age. The marvellous has had its vogue, its moment of glory, and its end.]

So what are the necessary ingredients for a novel? In chapter V of *ViagensnaMinha Terra* (Travels in my Homeland), Garrett provides a sort of recipe, which ironically lists all the clichés of a much too conventional canon:

Todo o drama e todo o romance precisa de:  
Uma ou duas damas, mais ou menos ingênuas,  
Um pai, - nobre ou ignóbil,  
Dois ou três filhos, de dezanove a trinta anos,  
Um criado velho,  
Um monstro encarregado de fazer as maldades,

Vários tratantes, e algumas pessoas capazes para intermédios e centros.

Ora bem; vai-se aos figurinos de Dumas, de Eug. Sue, de Victor Hugo, e recorta a gente de cada um deles, as figuras que precisa, (...) Depois vai-se às crônicas, tiram-se uns poucos de nomes e de palavrões velhos; (...) E aqui está como nós fazemos a nossa literatura original. (Garrett, 2004: 95-96).

[All dramas and novels must include:

One or two more or less ingenuous damsels,

A noble or ignoble father,

Two or three children, aged from nineteen to thirty,

An old servant,

A monster whose function is to do evil deeds,

Various carers, and some able people to act as intermediaries and centres.

So, you take Dumas', Eugene Sue's, or Victor Hugo's characters and cut out the ones you need (...) Then you take the chronicles and find some old names and words; (...) and that's how we make our original literature.]

In chapter fourteen of *Anátoma*, Camilo reveals a very similar attitude when he blames himself for not having used the essential ingredients for a good novel:

(...) o certo é que aí está o romance, mais de meio do seu primeiro volume, sem nos falar de uma tremenda sova de pau, como é de uso lá por cima; ou de duas punhaladas, em noite de cerração, atraíoadas no medonho de sombria viela; ou, ao menos, e para maior realce do copista, se, no embrulho destas ensossas filosofias, tivéssemos uma vista de cárcere, com o seu preso pálido e arrepiado, (...) (CasteloBranco, 2003: 149-150)

[the fact is that here is the novel, more than half way into the first volume, but it does not tell about terrible beatings, which is the custom of the north; or about treacherous stabbings in some murky alley in the dark of night; it could at least highlight the writer in the midst of all these dull musings, and afford us a view of a prison cell with a pale and terrified inmate, (...)]

Despite all these often conflicting justifications, which are not always consonant with the plot, Camilo wants to find, in fiction, a more attractive view than life itself, a view that makes for an easy escape into ideal worlds (Castro, 1994: 65). However, and according to what had already been revealed in *Mistérios de Lisboa*, his insistence on asserting the truthfulness of what is reported leads him to deny the novel any credibility at the same time as he reiterates that it belongs to the universe of the real, as can be seen in the following excerpts: “Se háverdadesobre a terra é o romance, queeutenho a honra de ofereceràsvoossashoras de desenfado.”(*A Filha do Arcediago* - The Archdeacon's Daughter, CasteloBranco, 1971b: 5); [If there is truth in this world, then that truth is the novel, which I have the honour of presenting to you for your beguilement.]

Eu desejo escrever o romance de modo que o meu leitor – se Deus me deparar um com experiência do mundo, e alma capaz de criar, pela reminiscência de ilusões extintas, novas ilusões – possa dizer: “a vida é isto...” (Um Homem de Brios - A Man of Pride, Castelo Branco, 1967a: 9)

[I wish to write novels in such a way that my readers – God willing, readers with knowledge of the world and able to create new illusions by reminiscing about past illusions – will be able to say: “this is life”...]

A greater complexity can be found in Camilo's play with truth and verisimilitude, where he defends himself from possible detractors and safeguards fiction, albeit indirectly. In *Doze Casamentos Felizes* (Twelve Happy Marriages), the narrator asserts that “Há verdades inverosímeis” [There are untruthful truths] (Castelo Branco, 1969a: 260), and in *O Retrato de Ricardina* (The Portrait of Ricardina) that “seria melhor inventá-las [as coisas] para saírem mais verosímeis do que as verdadeiras.” (Castelo Branco, 1971d: 7) [it would be better to invent (things) so they would appear more real than the real ones]. In *A Doida do Candal* (The Madwoman from Candal) and *O Que Fazem Mulheres* (What Women Do), the narrator suggests that his plots are highly probable:

- Todas as histórias dos meus romances são verdadeiras, minha senhora – respondi eu. – Uns casos aconteceram, outros podiam acontecer; e logo que podiam, é quase evidente que aconteceram; porque as dores não se inventam: ou se experimentam ou se adivinham. (Castelo Branco, 1971a: 276)

[“All the stories in my novels are true,” I replied. “Some of them happened, others could happen and, since they could happen, it is almost certain that they did; because you cannot invent pain: you either experience it or foresee it.”]

(...) o bom siso dos consumidores escolhe o romance verosímil, amalgamado com arte e discernimento, escrito de modo que seja o reflexo da sociedade, e que possa de per si reflectir também na sociedade, amoldurando-se nas formas costumeiras e exequíveis. (Castelo Branco, 1967c: 143).

[“(...) consumers with good judgement choose verisimilar novels, interspersed with art and discernment, written to be a reflection of society as well as to reflect upon society, and moulded into customary and workable forms.]

The notion of verisimilitude also implies a certain degree of manipulation, which again causes ambiguity and, as a consequence, doubt. In “Dedicatória à Espécie Humana, Inclusive os Barões” (Dedication to the Human Species, Including Barons) from *Cenas da Foz*, we read: “O romance, Senhora, é a mais profícua das farmácias, porque neste laboratório douram-se as pílulas com maravilhosa limpeza.” (Castelo Branco, 1983: 762) [The novel, Madam, is the most efficient pharmacy, because in its laboratory pills are coated golden with remarkable care.]

True, false, verisimilar, or fantastic, the novel carries in its core the very problems it wishes to raise, thus legitimizing the inclusion of characters that the narrator may want to justify, exempt from blame, comment on or simply ridicule (Castro, 1994: 67). For instance, in *Mistérios de Lisboa*, the narrator observes that Pedro da Silva “disliked Radcliffe” (Castelo Branco, 1969b: 3rd vol., 82). Later on in the novel, this remark allows him to take full advantage from a passage in Ann Radcliff's *The Mysteries of Udolfo* to highlight the Romantic stereotype:

Abriu a janela para refrigerar a cabeça afogueada, e não pôde retirar os olhos do vulto escuro do castelo de Cliton, onde naquele instante a imaginação lhe desceu o crepe que Emília vira no castelo de Udolfo. (Castelo Branco, 1969b: 3rd vol., 127).

[She opened the window to cool her flushed cheeks and could not take her eyes off the dark shadow of Cliton's castle when, at that very moment, her imagination saw the curtain being drawn as Emilia had seen in Udolfo's castle.]

These literary reminiscences, which also appear in other novels with reference to other authors, seem to function as an echo of their social and literary role. In *Onde Está a Felicidade?* (Where is Happiness?), Guilherme do Amaral is described as a “vítima dos romances” [victim of the novel] because he “leu de dia e de noite, decorou páginas, que lhe eletrizaram o coração combustível, afeioou-se aos caracteres do *grosso terror*, (...)” (Castelo Branco, 1965: 46) [he read day and night, memorized pages which electrified his inflammable heart, and took to the characters of *great terror* (...)]. In *Memórias de Guilherme do Amaral* (Memories of Guilherme de Amaral), the same idea emerges in the following passage: “Aqui tens tu um desgraçado que a leitura desencaminhou do plácido e seguro itinerário que seus ignorantes avós tinham trilhado do berço à sepultura.” (Castelo Branco, 1966a: 39) [Here's a wretched soul who has been diverted by the act reading from the security of the well-worn path which his ignorant grandparents had trodden from the cradle to the grave.]

The excerpts quoted above emphasise the potentially illeffects of the novel, in line with Rousseau's side as in *La Nouvelle Héloïse*, where he observes that, “Il doit déplaire aux dévots, aux libertins, aux philosophes; il doit choquer les femmes galantes et scandaliser les honnêtes femmes.” (Rousseau, 1854: 1) [(The novel) should displease devotees, libertines, philosophers; it should shock courageous women and scandalize honest ones] and that “jamais fille chaste n'a lu de romans, et j'ai mis à celui-ci un titre assez décidé pour qu'en l'ouvrant on sût à quoi s'en tenir. Celle qui, malgré ce titre, en osera lire une seule page, est une fille perdue. (Rousseau, 1854: 2) [No innocent girl has ever

read a novel, and I gave this novel a title so revealing that, on opening this book, one knows what to expect. She who, despite this title, dares to read one single page, is a wanton girl.]

The notion that the novel is 'corrosive' becomes more widespread in Romanticism, insofar as the Romantic aesthetics constantly challenges the norm by focusing on rupture and difference (Ferraz, 1987: 36). In fact, we know that CamiloCasteloBranco's reflections occur at a moment in culture which favoured a sort of pedagogy of taste and education of the reader (Reis 1994:109); we also know that the author of *Amor de Perdição* often enjoys saying the opposite of what he actually intends to say, in the conviction that reading should be a cultural practice accompanied by a narrative-building practice (Reis 1994:117). Nonetheless, Camilo's references to the power of the novel should not be underestimated, even if we perceive that they are often ironic and open to different interpretations.

In the chapter entitled "Warning", in *Livro Negro de Padre Dinis*, Camilo alludes to the reader's expectations and ends up offering a kind of definition of what he understands to be his public's taste. At the same time, however, he caricatures that taste in *Vinte Horas de Liteira* (Twenty Hours in a Litter), thus revealing the contradiction inherent in the universe of fiction. In the first novel quoted above, the reader is told: "Quereis um romance; não quereis uma elegia. É preciso dar-vos um romance; uma biografia, uma história em capítulos; um enredo interessante de peripécias. E tendes razão." (CasteloBranco, 1971c: 1st vol., 9) [You want a novel; you do not want an elegy. So you should be given a novel; a biography, a story in chapters; an interesting plot filled with adventures. And you are right.] In the second book, one character describes the novel indirectly, through its negative influence:

Sabes que eu leio os teus romances (...) Já fizeste chorar minha mulher: quase que me ias fazendo nervosa! Foi-me preciso dizer-lhe que tu mentias como dois ministérios, e que timbravas em ter um estilo de cebola ou de mostarda de sinapismos que faz rebentar chafarizes de pranto. Nem assim consegui desacreditar-te! Assim que sai romance teu, minha mulher, combinada com o editor, seca-me a paciência, até que o livro chega de Braga entre um papeliço de açúcar, e o saco do arroz. A pobre mulher começa a chorar no título; estreita-se a ler; e, ao outro dia, está desolhada, e amarela como as doze mulheres físicas, que tens levado à sepultura num rio de lágrimas. Tens romances, meu amigo, que mentem desde o título. (Castelo Branco, 1966b: 48-49)

[You know I read your novels (...) You've already made my wife cry, and you have almost led her to insanity! I had to tell her that you were lying

through your teeth, and that you insisted on using a style which, like onion or mustard plaster, makes readers burst into fountains of tears. Even so, I did not manage to discredit you! As soon as one of your novels is published, my wife, in collusion with the publisher, taxes my patience until the book arrives from Braga along with a packet of sugar and a bag of rice. The poor woman starts crying when she reads the title and goes on reading into the late hours of the night; then, the following day, she looks worn and pallid like the twelve women suffering from consumption which you have driven to the grave in a river of tears. There are novels, my friend, which lie from their very title.]

The artifice that leads the author to provide commentaries on his own novels creates the internal parody of discourse on itself, which, besides being a sign of great modernity, causes self-reflection and, paradoxically, results in the author practising the processes he denies.

It is not surprising, therefore, that the first sentence in the first chapter of *Onde Está a Felicidade?* (Where is Happiness?) reads, "Os romances fazem mal a muita gente" [Novels are bad for many people] (CasteloBranco, 1965: 45), and that the preface to *Anos de Prosa* (Years of Prose) contains lengthy considerations on the harms brought about by reading:

O mau romance tem afistulado as entranhas deste país. (...) Bendita e louvada seja a ignorância! Os romances franceses até 1830, encontraram as almas portuguesas hermeticamente calafetadas. Até esse ano infausto, a mulher era o anjo caseiro, a alma da despensa, a providência da peúga, e sobretudo a fêmea do homem (...). E, depois, o malefício do romance não está somente no plágio irrisório; o pior é quando as imaginações frívolas ou compassivas se entalham os lances da vida fantasiosa da novela, e crêem que a norma geral do viver é essa.» (CasteloBranco, 1984a: 3rd vol., 1031-1033)

[Bad novels have infected the very core of this country. (...) Blessed be ignorance! Portuguese minds were totally impermeable to French novels up to 1830. Until that unfortunate year, women were domestic angels, souls of the pantry, providential sock darners and, above all, men's help meet (...). Besides, the evil of the novel does not lie only in its unassuming plagiarism; what is worse is when frivolous or compassionate minds carve out the actions of the imaginary life of the novel, and believe that to be the life in general.]

The same idea crops up in *Coração, Cabeça e Estômago* (Heart, Head and Stomach):

Ai! Dez anos depois, a mulher do Porto já não era assim, não!

Tinha passado por elas o bafo pestilencial do romance. Liam e morriam para a verdade, e para a natureza legítima. Invejavam a palidez das pálidas, e a espiritualidade das magras. Tal menina houve que bebeu vinagre com pó de telha; e outras, mais suspirosas e avessas ao vinagre, desvelavam as noites emaciando o rosto à claridade doentia da lua. Algumas tossiam constipadas, e queriam da sua tosse catarrosa fingir a debilidade do peito, que não pode com o coração. Muitas, à força de jejuns, desmedravam a olhos vistos, e amolgavam as costelas entre as compressas d'aço do colete. (...)

Foi o romance que degenerou as raças (...)» (Castelo Branco, 1967b: 168).

[Ah! Ten years later, the women from Porto were no longer like that, not at all!

They had breathed in the putrid stench of the novel. They read and died for truth, and for legitimate nature. They envied the paleness of pale women and the spirituality of thin ones. There was even a girl who drank vinegar mixed with roof tile powder; and others, more pining and loath to drink vinegar, would stay up all night, their faces wasting away in the morbid moonlight. Some, suffering from a cold, took advantage of their chesty cough to fake a weakness of the heart. Many, given to fasting, would become thinner and thinner, their ribs bruised by the pressure of the steel boning of their corsets. (...)

It was the novel that led to the downfall of the human race. (...)"]

This purported interconnection between fiction and reality, to the point of one interfering with the other, is very curious. Camilo's caricature in fact favours a critical reading, as it highlights what is meant to be ignored and reveals the existence of strong cultural codes that can only be broken by ridicule. The chapter entitled "Cinco Páginas que é melhor não lerem" [Five pages you should not read] in *O Que Fazem Mulheres*, is a paradigmatic example of this. The scientific apparatus brought forth by the narrator serves no other purpose than to expose the novelist's intentions – the existence of false lineages, resulting from false baptism and birth certificates, which hide adulterous relationships.

Indeed the title of this chapter is much more interesting than its contents. The advice given in the title serves a necessarily opposite function, since all readers are bound to disregard its meaning and to read this chapter with even more intense curiosity. Now this is Camilo's supreme skill: saying something indisputable while meaning the exact opposite, as befits irony, and thus giving it a doubly symbolic effect. Camilo is well aware of the limitations of the novel, but he deliberately chooses to expose them to obtain the opposite effect: the foregrounding of the narrative construction and of the characters, who seem to embody the very principles they mock, by denying them.

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## A Computer Control System for Home Appliances

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**Abstract** - In this paper, we present a system to control home appliances from a computer. The system is designed for controlling the ON/OFF mode of different home appliances such as light, fan, TV, air-condition and so on. The appliances are connected to a computer through a programmed PIC16F73 microcontroller. An USB interface is used to connect the microcontroller with a computer. The program for the PIC16F73 has been written in micro C language. All the commands are carried out from a software layout running on a computer to control the home appliances.

**Keywords** : *home appliance, microcontroller, computer control.*

**GJCST-G Classification**: *K.4.3*



*Strictly as per the compliance and regulations of:*



# A Computer Control System for Home Appliances

Mohammad Rabiul Alam<sup>α</sup>, Md. Fazlul Kader<sup>σ</sup>, Kazi Tanvir Ahmmed<sup>ρ</sup> & Nur Akter Jahan<sup>ω</sup>

**Abstract** - In this paper, we present a system to control home appliances from a computer. The system is designed for controlling the ON/OFF mode of different home appliances such as light, fan, TV, air-condition and so on. The appliances are connected to a computer through a programmed PIC16F73 microcontroller. An USB interface is used to connect the microcontroller with a computer. The program for the PIC16F73 has been written in micro C language. All the commands are carried out from a software layout running on a computer to control the home appliances.

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## I. INTRODUCTION

Home automation systems or smart home technologies are systems and devices that can control elements of home environment such as lights, fans, air conditioners, television sets, electronic doors, security cameras, audio/visual equipment, computer systems etc. Home automation focuses more on comfort. There are many different types of home automation systems available. These systems are typically designed and purchased for different purposes. In fact, one of the major problems of these systems is that these are neither interoperable nor interconnected. House hold appliances can be controlled from a centralized control unit in a typical home automation system. For the most commercially available home automation systems, these appliances usually have to be specially designed to be compatible with each other and with the control unit.

Most commercially available home automation systems are all-in-one solutions which require that all controllable appliances are from the same company, or must be approved as compatible with said company's system [1]. Moreover these systems normally come with a proprietary, dedicated device which acts as the control center. To control the system from multiple locations, additional control devices must be purchased. These complex systems usually need to be integrated when the building is constructed and must be planned in advance. They are also difficult to upgrade or replace once installed. The overall investment adds up considerably and is financially infeasible in most cases [2]. These drawbacks hinder the popularity of such systems. There are some home automation systems

has been implemented, some of which use internet to control home appliances [3-4], some use mobile phones [5-7], some use parallel ports [8], but all of these are costly and hard to implement.

The objective of the proposed system is to offer a low-cost solution for a home automation system that overcomes the above drawbacks. The system provides basic control of appliances at a fraction of the cost of commercially available systems.

The rest of this paper is organized as follows. In section 2, we introduce the design overview of our proposed system. In section 3, software layout to control home appliances from a computer is illustrated. Hardware implementation is presented in section 4, and finally we conclude this paper in section 5.

## II. DESIGN OVERVIEW

The design demonstrates a system that allows one to control home appliances and turn on or off any appliance that is connected to a computer. The appliances are connected to the computer via a microcontroller. The power supply for each appliance is wired through an electromechanical relay. A number of relays are used depending on the number of appliances to be controlled. All the relays are controlled by a microcontroller. The microcontroller is connected to the computer via a USB to RS232 Converter. In Fig 1. We show the block diagram of our proposed system and Fig 2 shows the flowchart.

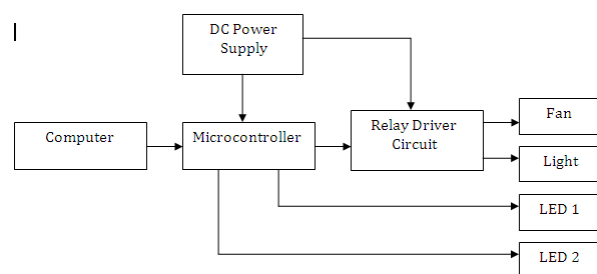


Figure 1 : Block Diagram of our designed system

Initially, all the switches are in the off state. When the ON button is clicked in the software interface to turn on the desired device, the software converts the ON command into hex code then sends the value to USB port address. It sends logic 1 (3.5-5V) to the microcontroller through RS232 converter. Then the microcontroller sends a 1 to the transistor. It will activate the transistor used to energize the relay. Inside a relay,

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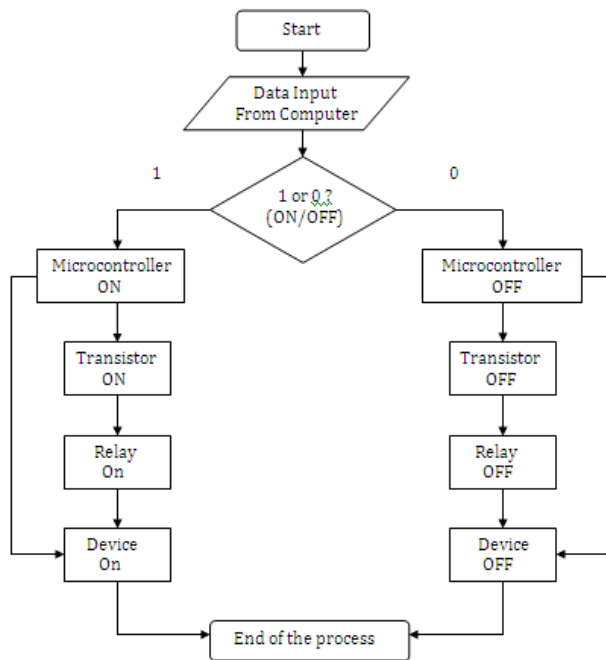


Figure 2 : The Flow chart of the designed system

there is an inductor (a wire coil), when energized with an electric pulse, will generate a magnetic field. The second part of a relay is a system of metallic arms, which make up the physical contact of the switch. When the relay is on, or an electric pulse is sent to the relay, the swing or switching arm of the relay moves to another contact of the relay (The relay we used has two contacts). The arm moves as the generated magnetic field pulls the swinging arm toward the inductor (or wire coil). And hence the AC circuit is completed and the electrical appliance is turned on.

When the OFF button is clicked to turn off a device, the software converts the OFF command into hex code then sends the value to USB port address. It sends logic 0 (0-1.5V) to the microcontroller through the RS232 converter. Then the microcontroller sends a 0 to the transistor. It will deactivate the transistor used to energize the relay. So the arm of the relay is swing back to another position, which makes the path of the current flow open. And hence electrical appliance is turned off. The terminal input of each appliances is wired across the Common and Normally Open terminals of the relays, thus the power to the appliances is switched on or off depending on whether the relay is active or not.

### III. SOFTWARE INTERFACE

The layout of the software used for controlling various home appliances is shown in Fig. 3. As an experimental basis; we have connected one light, one fan and two LEDs to our system which is shown in Fig 3. At First, a port number is set in the setCommPort field of the layout to activate connection between computer and microcontroller. If the connection is successful then we are able to control the appliances

from the computer .Each device can be controlled either as an on or off mode by pressing on or off button on the layout. A red button showing the indication that the light is on and the black button showing off. Although we have shown only four devices but any number of devices can be controlled from a computer with a slight modification in our designed system.

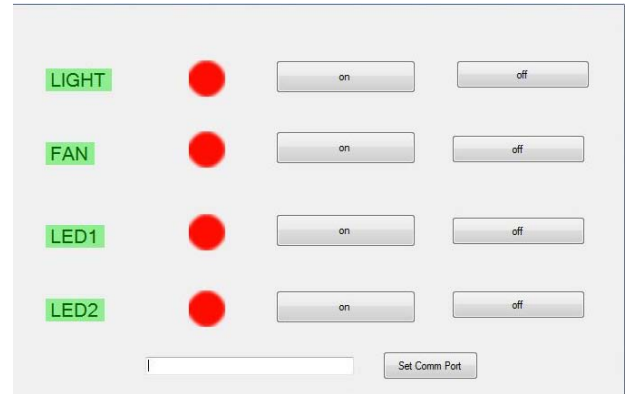


Figure 3 : Software layout

### IV. HARDWARE IMPLEMENTATION

The microcontroller used is a PIC16F73 manufactured by Microchip Technology Inc. The microcontroller is powered with +5V through the USB connection to a PC. A crystal oscillator is used for the functioning of the microcontroller. The microcontroller communicates with the computer using serial communication via an USB-to-Serial bridge. A RS232 USB-to-Serial Converter is used based on the Prolific PL2303 chip. It accepts 0 to +5V TTL voltages and outputs the signal on a COM port presented the PC. A MAX232N line driver is used to convert the 0 to +5V TTL levels to RS232 levels. The RS232 voltages are then sent through the PL2303 chip, which connects to the PC via USB. The microcontroller has multiple outputs that are used to control the relays. The relays require +6V DC power supply for operation. If the supply delivers low voltage than +6V, the relays may not function efficiently. Two overcome this, a 7806 voltage regulator is used to deliver a steady +6V. The microcontroller is programmed such that if it receives b, f, h, p it turns on the corresponding relays or appliances and if it receives a, e, g, o it turns off the corresponding relays or appliances. For

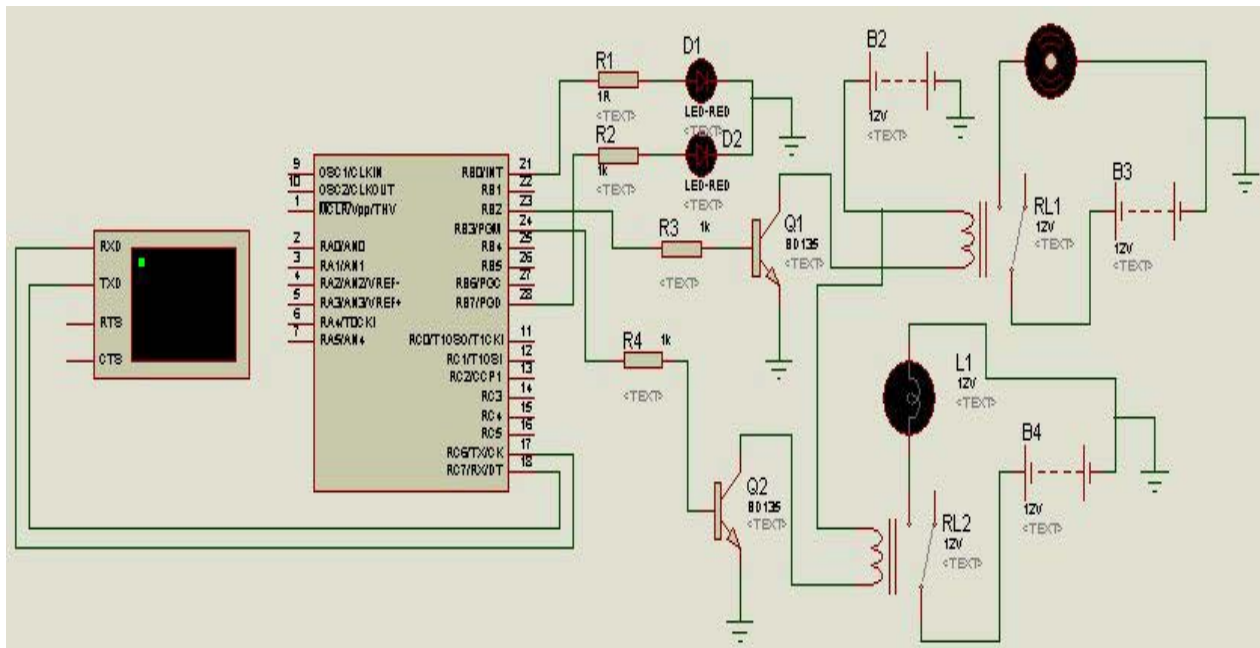


Figure 4 : Computer Control System for Home Appliances: Circuit Diagram

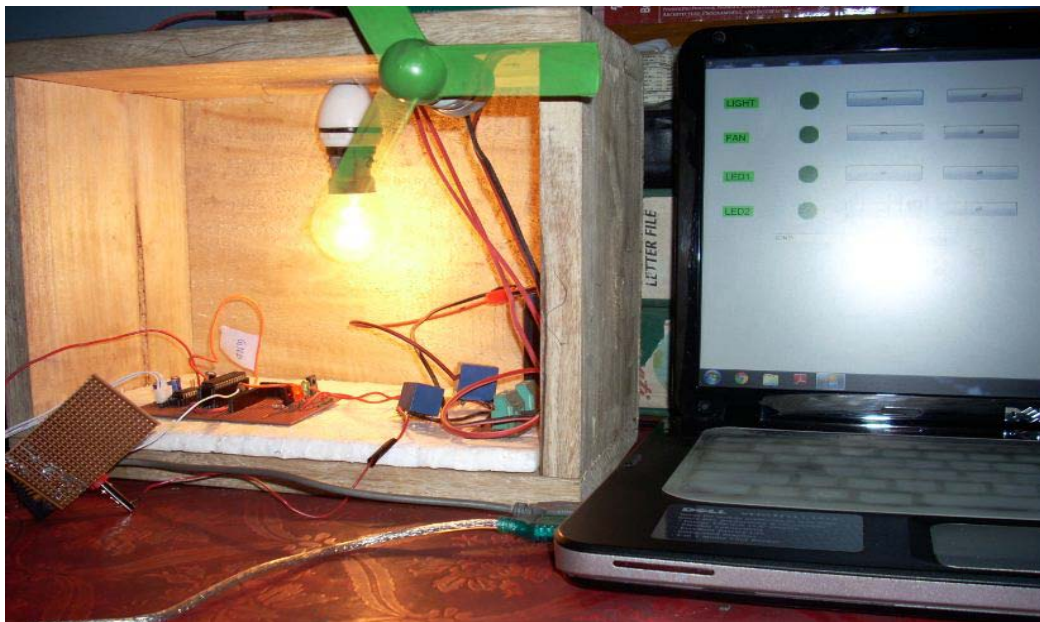


Figure 5 : Computer Control System for Home Appliances: Practical Implementation

convenience, we have designed a software layout from which we can turn on or off the relays or appliances. The software interface has many ON/OFF switches. The interface is such that when an ON/OFF switch is pressed it is the same as pressing the alphabets defined in the programming. In Fig. 4. We show the circuit diagram of our designed system in simulation environment and Fig 5. shows the practical implementation.

However, Transistors and ICs must be protected from the brief high voltage produced when a relay coil is switched off. The protection diode allows the induced voltage to drive a brief current through the coil

(and diode) so the magnetic field dies away quickly. This prevents the induced voltage becoming high enough to cause damage to transistors and ICs

## V. CONCLUSION

The concept of a proprietary control device is done away with as the system can be controlled from a desktop PC or laptop. There is no need for a specialized server system. Nowadays most users already own the requisites such as a desktop PC or laptop. Hence the cost of the system is considerably reduced. The installation cost and hardware cost is minimum, as most users already own the requisite hardware. The system



can be easily integrated into an existing electrical system of a building because of its simplified design. It can be easily installed in a single room if one so desires. Modifications to the existing electrical system are minimal, thereby reducing installations costs. The scope of this work is huge with the modernization and advancement in computer fields. It can be used in home automation, street light management, hotel power management, high voltage grid control and industrial automation.

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## Colon Cancer Prediction based on Artificial Neural Network

By Md. Asaduzzaman Sabuj & Priyam Biswas

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**Abstract** - Artificial neural networks (ANNs) consists of computational neurons or processing elements are linear mathematical model which abstract away the complex biological model and its aim is good, human like predictive ability. Artificial intelligence tries to simulate some properties of biological neural networks. In this study on the basis of previous dataset the in symptoms data are applied to a supervised back propagation artificial neural network learning process to find out the predictive outcome which is better than logistic regression (LR) process. As in most cases ANN is an adaptive system that changes its structure on the basis of internal and external information, the predictive result is more accurate than any other processes.

**Keywords** : *artificial neural network, back propagation, colon cancer, supervised learning, prediction.*

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# Colon Cancer Prediction based on Artificial Neural Network

Md. Asaduzzaman Sabuj<sup>a</sup> & Priyam Biswas<sup>a</sup>

**Abstract** - Artificial neural networks (ANNs) consists of computational neurons or processing elements are linear mathematical model which abstract away the complex biological model and its aim is good, human like predictive ability. Artificial intelligence tries to simulate some properties of biological neural networks. In this study on the basis of previous dataset the in symptoms data are applied to a supervised back propagation artificial neural network learning process to find out the predictive outcome which is better than logistic regression (LR) process. As in most cases ANN is an adaptive system that changes its structure on the basis of internal and external information, the predictive result is more accurate than any other processes.

**Keywords** : artificial neural network, back propagation, colon cancer, supervised learning, prediction.

## I. INTRODUCTION

Colon cancer is the third most commonly diagnosed cancer in the world, but it is more common in developed and developing countries. Around 60% of cases were diagnosed in the world. Most colon cancer occurs due to lifestyle and increasing age with only a minority of cases associated with underlying genetic disorders. It typically starts in the lining of the bowel and if left untreated, can grow into the muscle layers underneath, and then through the bowel wall.

Colon cancer prediction system is designed based on the staging system which has been introduced by American Joint Committee. Colon cancer staging is an estimate of the amount of penetration of a particular cancer. It is performed for diagnostic and research purposes, and to determine the best method of treatment. The systems for staging colon cancers depend on the extent of local invasion, the degree of lymph node involvement and whether there is distant metastasis. The staging system for colon cancer had four categories that are based on tumour-node-metastasis. The stages are I, II, III and IV by the use of T stage (i.e. tumour depth of penetration) and N stage (i.e., number of lymph nodes) and M stage (i.e., metastasis). Total resulting seven stages are I, IIa, IIb, IIIa, IIIb, IIIc and IV.

Here in this article we use the information of surveillance Epidemiology and End result (SEER) program. The percentage of survival rate is collected from SEER database and American society of clinical oncology. In case of supervised learning process these

data are used to learn the inputted data and finally to get the predicted result.

Each and every stage included particular tumor grade, specific histology, tumor location, number of positive lymph nodes, and metastases.

*Table 1* : Stages as defined by the American joint committee on cancer (ajcc) fifth and sixth edition

Staging system	T stage	N stage	M stage
AJCC fifth edition			
I	T1 or T2	N0	M0
II	T3 or T4	N0	M0
III	Any T	N1	M0
IV	Any T	Any N	M1
AJCC sixth edition			
I	T1 or T2	N0	M0
IIa	T3	N0	M0
IIb	T4	N0	M0
IIIa	T1 or T2	N1	M0
IIIb	T3 or T4	N1	M0
IIIc	Any T	N2	M0
IV	Any T	Any N	M1

\*T1= tumour invades submucosa; T2= tumor invades muscularis propria; T3= tumor invades through the muscularis propria into the subserosa or into non-peritonealized pericolic tissues; T4= tumor directly invades other organs or structures and/or perforates visceral peritoneum; N0= no regional lymph node metastasis; N1= metastasis to one to three regional lymph nodes; N2= metastasis to four or more regional lymph nodes; M0= no distant metastasis; M1= distant metastasis.

Each tumor stage was coded according to the TNM stage organization for each edition (T1= tumor invades submucosa; T2=tumor invades muscularis propria; T3= tumor invades through the muscularis propria into the subserosa or into nonperitonealized pericolic tissues; T4= tumor directly invades other organs or structures or perforates visceral peritoneum; N0= no regional lymph node metastasis; N1= metastasis to one to three regional lymph nodes; N2= metastasis to four or more regional lymph nodes; M0= no distant metastasis; M1= distant metastasis). TNM stage was determined by SEER's extent of disease (for T stage and M stage) and number of lymph nodes (for N stage) coding schemes. All patients were included in both analyses of survival for both staging

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systems. Tumor grade was categorized as low grade, low grade and others. High grade tumors are well or moderately differentiated and low grade tumors are poorly differentiated. Tumor location was categorized as right (cecum, ascending colon, hepatic flexure), transverse, left (splenic flexure, descending colon), and sigmoid colon. The numbers of positive lymph nodes were also categorized. Duke and Macd are also categorized as A, B and C. Histologic subtypes are categorized Adenocarcinomas, Mucinous adenocarcinomas and Signet ring carcinoma. The purpose of this study was to determine the presence or absence of colon cancer using ANN. An ANN technology was chosen as an analysis tool primarily because of its demonstrated accuracy in a wide variety of situations.

A logistic regression analysis was chosen as a comparison primarily because it is an accepted standard. Artificial neural networks (ANNs) grew out of attempts to mimic the fault tolerance and capacity to learn of biological nervous systems. The ANNs do this by modeling the low level structure of the brain. A biological nervous system is composed of a very large number of neuron cells, massively interconnected to one another. Each neuron is a specialized entity that can propagate an electrochemical signal. Each neuron has branching input structures called dendrites and branching output structures called axons. The axons of one cell are connected to the dendrites of other cells by synapses. Signals are propagated throughout this complex organism, regulated primarily by the synapses.

In like manner, a typical ANN consists of computational neurons or processing elements connected by weighted signal pathways. They typically have a much simpler architecture, with many fewer neurons and connections, than a biological nervous system has. An artificial neuron receives a number of inputs, either from data entering the network or as output from other neurons. Each input comes via a pathway connection that has strength or, in terms of ANNs, weight. These weights correspond to synaptic strength in biological systems. Each neuron also has a single threshold value. The activation of this artificial neuron is composed of the weighted sum of its inputs less the threshold value. This activation signal is transformed through an activation or transfer function to produce the output of the neuron. The transfer function is generally a nonlinear, continuously differentiable function that may not have a direct biological equivalent. Artificial neural networks consist of input elements that bring in signals from the outside world in a manner somewhat similar to biological sensory nerves from, for example, the eye. The input signals are fed to one or more layers of neurons through the weighted pathway connections. These hidden neurons process the signals and produce another set of signals that are sent to an output layer of neurons through weighted pathway

connections. The output neurons generate a signal to the outside world that is somewhat similar to biological motor nerves connected, for example, to the hands.

## II. SURVIVAL ANALYSIS

5-year survival was 65.2%. According to stages defined by the AJCC fifth edition system, 5-year stage-specific survivals were 93.2% for stage I, 82.5% for stage II, 59.5% for stage III, and 8.1% for stage IV. According to stages defined by the AJCC sixth edition system, 5-year stage-specific survivals were 93.2% for stage I, 84.7% for stage IIa, 72.2% for stage IIb, 83.4% for stage IIIa, 64.1% for stage IIIb, 44.3% for stage IIIc, and 8.1% for stage IV. Under the sixth edition system, 5-year survival was statistically significantly better for patients with stage IIIa colon cancer (83.4%) than for patients with stage IIb disease (72.2%) ( $P < .001$ ).

### a) Survival by Histologic Subtype

Among patients in the entire cohort, 87.4% had adenocarcinomas, 11.6% had mucinous adenocarcinomas, and 1.0% had signet ring cell carcinomas. Among the entire cohort, a worse 5-year survival was statistically significantly associated with signet ring cell carcinomas (36.0%) than with adenocarcinomas (65.9%) or with mucinous adenocarcinomas (61.8%). When we further stratified data in each stage (as defined by the fifth edition system) by histologic subtype, we observed similar survival distributions in stages II, III, and IV, but not in stage I. For example, in stage III, the 5-year survival was 36.6% for signet ring cell carcinomas, 60.1% for adenocarcinomas, and 58.7% for mucinous adenocarcinomas ( $P = .001$ ). For stage I, however, the 5-year survival was 100.0% for signet ring cell carcinomas, 93.3% for adenocarcinomas, and 92.0% for mucinous adenocarcinomas; these values were not statistically significantly different from each other [2].

Stage	0 m0		30 m0			60 m0		
	Survival (%)	N	Survival (%)	N	P	Survival (%)	N	P
I	100	14500	96.1	8591	-	93.2	4515	-
II	100	34361	89.2	19492	<.0001	82.5	10105	<.0001
III	100	26949	72.7	12192	<.0001	59.5	5514	<.0001
IV	100	20802	17.3	1832	<.0001	8.1	432	<.0001

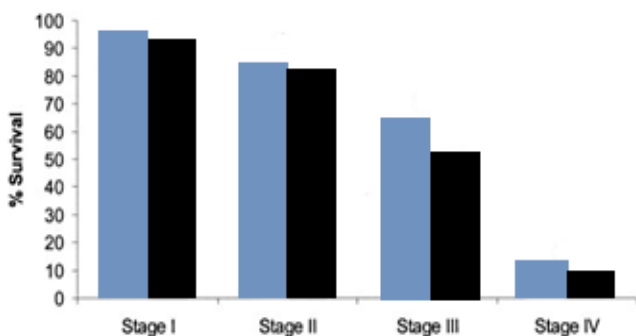
*Figure 1* : Five-year survival by American Joint Committee on Cancer fifth edition system stages I–IV.  $P$  value determined with the log-rank test refers to the corresponding stage and the stage in the row above. All statistical tests were two-sided

Stage	0 m0		30 m0			60 m0		
	Survival (%)	N	Survival (%)	N	P	Survival (%)	N	P
I	100	14500	96.1	8591	-	93.2	4515	-
IIa	100	28535	91.0	2105	<.001	84.7	8494	<.001
IIb	100	5826	80.2	3060	<.001*	72.2	1611	<.001*
IIIa	100	1989	91.4	1120	NS+	83.4	551	NS+
IIIb	100	15946	77.3	7786	<.001+	64.4	3579	<.001+
IIIc	100	8600	59.1	3039	<.001	44.3	1220	<.001
IV	100	20802	17.3	1832	<.001	8.1	432	<.001

**Figure 2 :** Five-year survival by the American Joint Committee on Cancer sixth edition system stages I-IV. P value determined by the log-rank test refers to the corresponding stage and the stage in the row above, unless otherwise indicated. All statistical tests were two-sided. \* = IIIa versus IIb; + = IIa versus IIIa; +\* = IIb versus IIIb; NS = not statistically significant

#### b) Survival by Tumor Grade

We next used colon cancer stages as defined by the AJCC fifth edition system and stratified data in each stage further by other factors to assess their prognostic value. Among all patients evaluated in the cohort, 67.8% (n= 81 493) had low-grade tumors, 19.4% (n= 23 287) had high-grade tumors, and 12.8% (n= 15 343) had tumors whose grade was unknown. For those patients whose tumor grade (high versus low) was known (n= 104 780), tumor grade was statistically significantly associated which is shown in figure 3.



**Figure 3 :** Five-year survival for American Joint Committee on Cancer fifth edition by grade. Solid bars, low-grade tumors; shaded bars, high-grade tumors. Star,  $P = .001$ , log-rank test. All statistical tests were two-sided

#### c) Survival by Tumor Location

Among patients in the entire cohort, 44.6% had tumors in the right colon, 9.4% had tumors in the transverse colon, 10.4% had tumors in the left colon, 31.6% had tumors in the sigmoid colon, and 4.0% had tumors whose location was unknown. Among the overall cohort, a better 5-year survival was statistically significantly associated with tumors located in the sigmoid colon (69.8%) than with tumors located in the right colon (63.7%) ( $P = .001$ ), in the transverse colon (65.0%) ( $P = .001$ ), and in the left colon (65.1%)

( $P = .001$ ). When we further stratified each stage (as defined by the fifth edition system) by these tumor locations, we observed similar survival distributions in stages I, III, and IV, but not in stage II (Fig. 5). For example, in stage III, 5-year survival was 64.3% for sigmoid lesions, 57.0% for right colon lesions ( $P = .001$ ), 57.9% for transverse ( $P = .001$ ), and 60.2% for left-colon lesions ( $P = .001$ ), whereas in stage II, 5-year survival was 83.6% and 83.7%, respectively, for right and transverse-colon lesions, 81.5% for the left colon, and 80.7% for sigmoid lesions[1].

#### d) Lymph Nodes

Among patients in the entire cohort, 32.5% had positive lymph nodes. When we used a histogram analysis of the number of positive lymph nodes, we found that the N stage could be stratified into the following four categories: N1 (one to three positive lymph nodes), N2 (four or five positive lymph nodes), N3 (six to eight positive lymph nodes), and N4 (nine or more positive lymph nodes). We used the proposed N stages in combination with the AJCC sixth edition staging system as a new staging system (Table 2). In this new system, stages I, IIa, IIb, IIIa, and IIIb are the same as corresponding stages in the sixth edition system, but the new stages IIIc, IIId, and IIle are stratified by categories N2, N3, and N4, respectively, as defined above. The 5-year survival by these proposed stages is 93.2% for stage I, 84.7% for stage IIa, 72.2% for stage IIb, 83.4% for stage IIIa, 64.1% for stage IIIb, 52.3% for stage IIIc, 43.0% for stage IIId, 26.8% for stage IIle, and 8.1% for stage IV [2]. Corresponding Kaplan-Meier survival curves for this system are shown in Fig. 4.

Stage	0 m0		30 m0			60 m0		
	Survival (%)	N	Survival (%)	N	P	Survival (%)	N	P
I	100	14500	96.1	8591	-	93.2	4515	-
IIa	100	28535	91.0	2105	<.001	84.7	8494	<.001
IIb	100	5826	80.2	3060	<.001*	72.2	1611	<.001*
IIIa	100	1989	91.4	1120	NS+	83.4	551	NS+
IIIb	100	15946	77.3	7786	<.001+	64.4	3579	<.001+
IIIc	100	4092	67.1	3039	<.001	52.3	725	<.001
IIId	100	2655	57.3	908	<.001	43.0	384	<.001
IIle	100	1853	43.1	434	<.001	26.8	141	<.001
IV	100	20802	17.3	1832	<.001	8.1	432	<.001

**Figure 4 :** Survival by American Joint Committee on Cancer sixth edition staging with proposed lymph node (N) stages. \*,  $P$  values determined by the log-rank test refers to the corresponding stage and the stage in the row above, unless otherwise indicated. \* = IIIa versus IIb; + = IIa versus IIIa; +\* = IIb versus IIIb; NS = not statistically significant. All statistical tests were two-sided

### III. METHODOLOGY

A back-propagation (BP) neural network is a multi-layer network and the layers are fully connected that is every neuron in each layer is connected to every other neuron in the adjacent forward layer. In a back-



propagation neural network, learning algorithm has two phases. First, a training input pattern is presented to the network input layer. The network then propagates the input pattern from layer to layer until the output pattern is generated by output layer. If this pattern is different from the desired output, an error is calculated and then propagated backwards through the input layer. The weights are modified as the error is propagated.

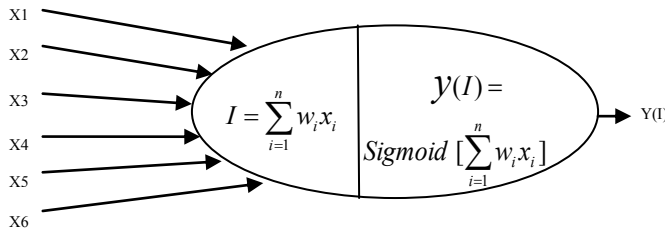


Figure 5 : Neuron Output Determination in Backpropagation NN

The feed forward BP MLP can be viewed basically as a set of equations that are linked together through shared variables in a formation diagramed as a set of interconnected nodes in a network capable of general functional approximation that provides learning capabilities. Variables for inclusion in the final network architecture are usually chosen by a sensitivity analysis method, which tests each input variable by dropping it from the input list and determining the resulting loss of predictive accuracy. Only variables that result in a significant loss of accuracy when dropped are retained in the final network's architecture. Classification tasks like tumor staging, diagnosis, or predicting survival can be performed by FFANNs. FFANN is typically organized as a set of interconnected layers of artificial intermediate (hidden) nodes depicted as a row or collection of nodes, each receiving input from other nodes, connected together to form the network. The MLP has an associated output activation level known as a "squashing" or "activation" function; the most popular is the sigmoid function  $[f(I)]$  expressed as:

$$f(I) = 1/[1 + \exp(-I)]$$

#### Step 1 : Initialization

Set initial weights  $w_{ij}$ ,  $w_{jk}$ ,  $[i=1\dots n]$ ,  $[j=1\dots m]$ ,  $[k=1\dots l]$ , threshold values  $\theta_j$ ,  $\theta_k$  and learning rate with random number within the range  $[-2.4/F_i, +2.4/F_i]$  where  $F_i$  = maximum no. of inputs connected to the single neuron.

$$y_j(p) = \text{sigmoid}[\sum_{i=1}^n x_i(p) w_{ij}(p) - \theta_j] \quad (1)$$

#### Step 2 : Activation

Calculate the actual output of neuron of hidden layer.

$$y_k(p) = \text{sigmoid}[\sum_{j=1}^m x_j(p) w_{jk}(p) - \theta_k] \quad (2)$$

Here  $n$  is the no. of input layer neurons connected to hidden layer neuron  $j$ . Calculate the actual output of neuron of output layer.

Where  $m$  is the no. of hidden layer neurons connected to output layer neuron  $k$ .

#### Step 3 : Weight Update

Update the weights in the network.

Hidden layer weight update:

$$w_{jk}(p+1) = w_{jk}(p) + \Delta w_{jk}(p) \quad (3)$$

$$\Delta w_{jk}(p) = \alpha y_j(p) \delta_k(p) \quad (4)$$

$$\delta_k(p) = y_k(p)[1 - y_k(p)]e_k(p) \quad (5)$$

$$e_k(p) = y_{d,k}(p) - y_k(p) \quad (6)$$

Input layer weight update:

$$w_{ij}(p+1) = w_{ij}(p) + \Delta w_{ij}(p) \quad (7)$$

$$\Delta w_{ij}(p) = \alpha x_i(t) \delta_j(p) \quad (8)$$

$$\delta_j(p) = y_j(p)[1 - y_j(p)] \sum_{k=1}^l \delta_k(p) w_{jk}(p) \quad (9)$$

#### Step 4 : Iteration

Increase iteration  $p$  by one, go back to Step 2. Process is repeated until the error reduces to zero or closer to zero. Computing the output result and comparing it with the expected one find out the error and if the error is very higher than expected then error reduction process is applied here to reduce it. Each and every iteration comparing with the expected result the weight values are updated back propagating from end from the final layer to first layer. Then again using those weight values we will get the next result which has less error than before. In the same way after some iteration we will get more closer result than before and finally when the result is closest and has the least error then it is defined as the final result.

## IV. CONCLUSIONS

To aid clinicians in the diagnosis of colon cancer, recent research has looked into the development of computer aided diagnostic tools. Various techniques have been widely used for colon cancer diagnosis. In this paper we have discuss some of effective techniques that can be used for colon cancer determination. The predicting outcome is found based on comparing with previous dataset value. It is proved that in this process the outcome is more accurate than any other process.

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4. Manuscript's Category,
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**32. Never oversimplify everything:** To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

**33. Report concluded results:** Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

**34. After conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

### Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.



Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

- Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

- Use standard writing style including articles ("a", "the," etc.)
- Keep on paying attention on the research topic of the paper
- Use paragraphs to split each significant point (excluding for the abstract)
- Align the primary line of each section
- Present your points in sound order
- Use present tense to report well accepted
- Use past tense to describe specific results
- Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives
- Shun use of extra pictures - include only those figures essential to presenting results

### **Title Page:**

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



### Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript-- must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

### Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

### Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

### Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.



- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

#### **Procedures (Methods and Materials):**

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

#### **Methods:**

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

#### **Approach:**

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

#### **What to keep away from**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

#### **Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



## Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

### What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

### Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

### Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

### Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

### Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.





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<b>Introduction</b>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<b>Methods and Procedures</b>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<b>Result</b>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<b>Discussion</b>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<b>References</b>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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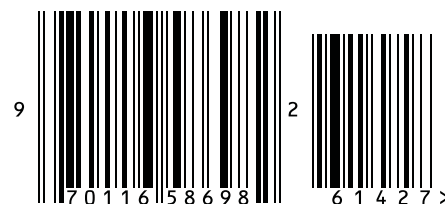
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