PERSONAL INFORMATION:

Name: Esraa Abd El-Raouf Hamed Abd El-Hady

Date Of Birth: 21 /10 /1983

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Current Position: Lecturer at the Faculty of Computer Science and Information Systems- Ain Shams University

EDUCATION:

2012-2023 Ph.D. in Scientific Computing from the Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt.

2006- 2011 Postgraduate studies, M.Sc. in Scientific Computing from the Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt.

2000- 2004 B.Sc. in the Faculty of Computer and Information Sciences - Scientific Computing Department
(Very Good with honors degree).

LANGUAGE SKILL

TOEFL PBT: 575.

WORK AS TEACHING ASSISTANT FOR THE FOLLOWING COURSES:

1. **Linear Algebra.**
2. **Biomedical Image Processing.**
3. **Computational Methods for Image Analysis.**
4. **Calculus I**.
5. **Calculus II**.
6. **Physics I**.
7. **System Analysis and Design**.
8. **Software Engineering**.

RAMMING PRACTICE AND WORK EXPERIENCE:

- Teaching Assistant – Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt (2006-2011).

- Lecturer Assistant – Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt (2011-2023).

- Lecturer – Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt (2023 until now).

B.SC. GRADUATION PROJECT (2004)

Title: Scientific data visualization kit (SDVK)

Tools:

- ✓ Visual C++ 6
- ✓ OpenGL
- ✓ Python

Main Scientific field: Scientific Data Visualization

Aims:

- ✓ Study and implement scientific data visualization techniques including both scalar and vector data techniques.
- ✓ The project adopts the standard data format for Amtec Tecplot™ .

Achievements:

- ✓ The Project success to implement usefully the following scientific data visualization techniques :
  - Line Contouring
  - Flooded Contouring (*with a new algorithm published in ICICIS 2002 conference proceeding*).
  - Iso-surface Technique using a modified marching cube method.
  - Cut Plans.
  - Vector Plot.
  - Stream Line.
  - Stream Tube.
  - Normal and carpet plots.
- ✓ The Project Export it's output in some formats such as:
  - Jpg
  - Bmp
  - Avi
  - Wmf

Project Grade: ***Excellent***

Extensions: I supervised and help in the design and implementation of the next stage which was the implementation of these techniques over the WWW-environment through VRML as a standard output viewing and transfer format.

M.SC. THESIS ABSTRACT (2011)

The plentiful content of the World Wide Web is useful to millions. Some simply browse the Web through entry points. But many information seekers use a search engine to begin their Web activity. In this case, users submit a query, typically a list of keywords, and receive a list of Web pages that may be relevant, typically pages that contain the keywords. Now, search engines became very essential information resources for net users and they form a very important commercial industry.

Searching online provides you with a wealth of information, but not all of it will be useful or of the highest quality. Search engines are distributed programs that dive into the World Wide Web to find relevant information for a given search query. Their fundamental components are: the crawlers, the indexer module, the collection analysis module, the query engine, and the ranking module.

The ranking module represents a significant component in web search engines. The main function of the ranking module is to sort the search results by relevance or importance using information retrieval (IR) algorithms.

There were two kinds of methods in information retrieval, based on content and based on hyper-link. The quantity of computation in systems based on content was very large and the precision in systems based on hyper-link only was not ideal. It was necessary to develop a technique combining the advantages of two systems.

Many web users are interested in Arabic web browsing whether the reason is academic or commercial… suffer to find their search and request over the Arabic search engine etc. As the existing web search engines are designed to perform English web searches. They don't generate morphological variations of Arabic words but they just match the word as it is. Therefore their results contain only the pages that exactly match the user query. They also don't consider the different meanings of a word so search results contain unrelated pages to user query.

In this research, we focus on implementing an enhanced ranking algorithm by combining both the page content and the Hyper-Link with the focus on Arabic search engines by taking into account the stem and the context of the Arabic word by combining both the count of words related to query in the page and the count of words related to query in outlinks pages of that page to calculate its rank, using external database having the morphological meanings of the most Arabic words. Then sort the pages according to its rank.

If there is more than one meaning to an input query word in case the user does a query in using only one word, the user may choose the meaning he/she wishes to search for. The search results will largely contain the inflected forms of the word that belong to that meaning. This helps reduce the redundancy that results from morphological search only.

Distributed page ranking are needed because the size of the web grows at a remarkable speed and centralized page ranking is not scalable.

To speed up the ranking module process, this thesis proposes a parallel technique for this Arabic ranking module. We applied this Arabic ranking module on a dataset of 10000 Arabic web pages. This research proved that the optimal number of processors needed for this parallelization is 10 processors. Using this number of processors, the proposed parallel algorithm is very efficient and gets perfect speedup.

Ph.D. Thesis Abstract

Lung and colon cancer have the most severe death and incidence rates of all the common malignancies across the world. Early diagnosis of the disease increases survival chances for affected people. An important element of cancer type identification is histopathological diagnosis. It is urgently necessary to analyze histopathological images of lung and colon cancers since the type of histology, molecular profile, and stage of diagnosis all influence how the disease is treated. Pathologists can use deep learning methods to diagnose lung and colon cancer more quickly and reduce stress. It aims to make computers capable of analyzing, identifying,

and perceiving images similarly to humans. Additionally, it produces the desired results. It is like giving a machine-human intelligence and instinct. Convolutional neural networks (CNN), in particular, enhance efficiency in cancer histology slide examination.

The thesis utilizes a CNN model to extract features from images after undergoing preprocessing, followed by the classification of lung and colon tissues using an improved Light Gradient Boosting Machine (LightGBM). The effectiveness of the proposed CNN feature extraction model is compared to other deep learning methods, such as VGG16, VGG19, AlexNet, Inception ResNet v2, ResNet50, Inception v3, GoogLeNet, and MobileNet. Additionally, the performance of the LightGBM classifier is evaluated against other machine learning models, including KNN, SVM, RF, AbaBoost, and XGBoost. Test images are separated into benign and malignant lesions without human intervention.

Furthermore, the suggested CNN model boasts the lowest training parameters with just one million parameters. The proposed CNN-LightGBM model outperforms other state-of-the-art approaches in the feature extraction and classification of lung and colon cancer histopathological datasets. The suggested approach achieves feature extraction and classification within three seconds. This points towards a superior diagnostic speed and high accuracy in disease classification compared to more recent methods.

PUBLICATIONS LIST

1. N. Badr, E. A. Hamed, and M. F. Tolba, "The Ranking Module for an Arabic Search Engine," In Proceedings of the Seventh International Conference on Language Engineering, December 2007.
2. E. A. Hamed, N. Badr, and M. F. Tolba, "An Efficient Ranking Module for an Arabic Search Engine," In Proceedings of IJCSNS International Journal of Computer Science and Network Security, February 2010.
3. M. F. Tolba, N. Badr, and E. A. Hamed, "Efficient Parallelization for an Arabic Ranking Technique," In the International Journal of Intellegent Computing and Information Science, Ain Shams University, Egypt, January 2011.

4. E. A. Hamed, N. Badr, and M. F. Tolba, "An Enhanced Method for Ranking Arabic Web Pages Using Morphological Analysis," In Proceedings of the Eleventh International Conference on Language Engineering, December 2011.

5. Hamed, E. A. R., Salem, M. A. M., Badr, N. L., & Tolba, M. F. "Lung Cancer Classification Model Using Convolution Neural Network." In The 3rd International Conference on Artificial Intelligence and Computer Vision (AICV2023), March 5–7, 2023 (pp. 16-26). Springer, Cham.
6. Hamed, E. A. R., Salem, M. A. M., Badr, N. L., & Tolba, M. F. "An Efficient Combination of Convolutional Neural Network and LightGBM Algorithm for Lung Cancer Histopathology Classification." In Diagnostics, 13(15): 2469, 2023, MDPI, Q2, Impact factor (3.6).
7. Hamed, E. A. R., Salem, M. A. M., Badr, N. L., & Tolba, M. F. "A Deep Learning-Based Classification Framework for Annotated Histopathology Lung Cancer Images." In the 9th International Conference on Advanced Intelligent Systems and Informatics (AISI'23), Volume 184, Sept. 20-22, 2023 (PP. 86-94). Cham: Springer Nature Switzerland.
8. Hamed, E. A. R., Salem, M. A. M., Badr, N. L., & Tolba, M. F. "Large-scale Histopathological Colon Cancer Annotation Model Using Deep Learning techniques." In the International Journal of Intelligent Computing and Information Sciences, Volume 23, Issue 3, September 2023, (PP. 1-152).
9. Al-Eisawi, Omnia A., et al. "A Deep Learning Approach for 3D Human Object Reconstruction from 2D Images: Review, Advances, and Limitation." *International Conference on Advanced Intelligent Systems and Informatics*. Cham: Springer Nature Switzerland, 2025.

PROGRAMMING LANGUAGES & TOOLS:

1. Python.
2. Visual Studio .NET C#
3. Microsoft Visual C++ (MFC Application)
4. Microsoft Visual C++ (ODBC Database Programming)
5. Microsoft Visual C++ (GDI Programming)
6. Microsoft Visual Basic 6 (API, Database programming DAO, ADO, ActiveX)
7. Microsoft SQL Server 2005,2000, 97
8. Microsoft Visual C++ (OpenGL Graphics Programming)

9. ASP & VBScript
10. TAPI applications (Visual C++ 6 and Visual C#)
11. Microsoft Visual C++ (Multithreading & Networking)
12. Oracle (Developer& Designer& Administration).
13. PDC Visual Prolog 5.1
14. Visual Basic .NET