



# Mansour Essgaer

Senior Lecturer / Senior Software Developer

## 1. Personal Particular

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## 2. Personal Statement:

I believe that my academic training and my almost five years of research experience prepare me to be an effective researcher and instructor in computer sciences. I am highly qualified to handle wide range of topics related to computer science (fundamental and advanced subjects). Moreover, I am capable to supervise undergraduate students in their final year project as well as postgraduate candidates. hands-on experience using several programming languages to create and implement software applications as developer and teaching skill to deliver lectures, seminars, tutorials, and assessing students coursework.

## 3. Academic Qualifications:

- 3.1 Ph.D. in Computer Science (Artificial Intelligence, Data Mining and Optimization), from Faculty of information science and technology, **Universiti Kebangsaan Malaysia**.
  - **Thesis title** 'Insertion based construction heuristic with cuckoo search metaheuristic for capacitated vehicle routing problem'
- 3.2 Master in Computer Science (Artificial Intelligence), December 2008, School of Computing, College of Arts and Sciences, **Universiti Utara Malaysia**.
  - **Thesis title** 'Mining Sebha University student enrolment data using descriptive and predictive approaches'
- 3.3 Bachelor in Computer Sciences, July 2002, Faculty of sciences, **Sabha University**, Libya.
  - **Final project title** 'Develop a registrar office student administration system with relational database'

#### 4. Publications - Journal and Conference Papers

- 4.1 F. Siraj and **M. A. Abdoulha**, (2009). *Uncovering Hidden Information within University's Student Enrolment Data Using Data Mining*. Third Asia International Conference on Modelling & Simulation, Bali, 2009, pp. 413-418. **(26 Citation)**.
- 4.2 **Allsager, M.**, & Othman, Z. A. (2014). *Simulated annealing algorithm using iterative component scheduling approach for chip shooter machines*. Journal of Theoretical and Applied Information Technology, 65(2), 480-490. **Indexed in Scopus**.
- 4.3 **Allsager, M.**, & Othman, Z. A. (2016a). *Cuckoo Search Algorithm for Capacitated Vehicle Routing Problem*. Journal of Theoretical & Applied Information Technology, 88(1). **Indexed in Scopus**.
- 4.4 **Allsager, M.**, & Othman, Z. A. (2016b). *Taguchi-based Parameter Setting of Cuckoo Search Algorithm for Capacitated Vehicle Routing Problem*. In J. P. Soh, L. W. Woo, A. H. Sulaiman, A. M. Othman & S. M. Saat (Eds.), *Advances in Machine Learning and Signal Processing: Proceedings of MALSIP 2015* (pp. 71-79). Cham: Springer International Publishing. **Indexed in ISI**.

#### 5. Work Experience and Accomplishment:

##### 5.1 Graduate research assistant **Universiti Kebangsaan Malaysia, Bangi, Malaysia:**

Aug, 2016 - present

Currently, I supervise two under graduate students and one master student in their research in mining Malaysian weather data using aprori algorithm to extract association rules which used to discover hidden pattern and information.

##### 5.2 Full time Ph.D. Researcher **Universiti Kebangsaan Malaysia, Bangi, Malaysia:**

Sep, 2011- Jun, 2016

My main responsibilities as a Ph.D. candidate in Artificial Intelligence, in the field of optimization and data mining is to enhance metaheuristic algorithms component, I already develop a number of algorithms for this purpose, such as: Nearest neighbour, clarke and wright saving algorithm, Simulated annealing, Great deluge, Hill climbing, Tabu search, Harmony search, Water flow alike algorithm, Genetic algorithm and Cuckoo search.

##### 5.3 Assistant Lecturer **Sabha University, Sabha, Libya:**

Aug, 2009 – Dec, 2010

Subject that I used to teach to undergraduate level:

- System Analysis and Design
- Software Engineering
- C++ programing language
- Java programing language

##### 5.4 Part time senior software developer **Sabha University, Sabha, Libya:**

Mar , 2009 – Jul, 2010

I developed software for the department of botany, faculty of sciences, to change the process of collecting the botany samples to computerized process,

whereby all the samples photographed and saved into the software.

**5.5 Senior software developer Developed and maintained Student Administration System (SAS) for Sabha University, registrar office, Sabha, Libya:**

May, 2004 – Jul, 2007

Singlehandedly developed and deployed a SAS for the Registrar's Office. The SAS featured central rational database with multiuser interface in client-server architecture environment, and user access levels to organize all students registered data in the university since its establishment in 1976. The project was carried out with limited access to material, informational and technical resources. This project replaced the complex paper-based system, and was utilized by branches of fifteen colleges in two different countries: Libya and Chad. The program saved the university more time and resources, and was used until 2012.

The success of the aforementioned SAS led to an assignment by the Graduation Office at the College of Science Sabha to create a faculty-specific SAS with E-learning management functionality and graduation credentials verification features. This project was developed by Pascal language using Borland Delphi 7 IDE and Interbase rational database.

**5.6 Part time Graphics Designer Al-Ghad printing services, Sabha, Libya:**

May 2005 – Jun, 2007

Deliver a graphics design art work used in marketing communication and advertisements purposes, many of which were printed as poster, brochure, album cover and book cover. At the same time supervised and trained a junior graphic designer.

## 6. Research interest

- Artificial Intelligence, Scheduling, Heuristic Search, Evolutionary Algorithms, Machine learning, Optimization, Timetabling, and Data mining.

## 7. Skills

<b>7.1 Technical</b>	Experience of using different Integrated development environment	Borland Delphi 7, Eclipse, Microsoft Visual Studio, NetBeans, Android Studio.
	Different programming language	C++, Java, Pascal, HTML, CSS, Android, JSON, Restful
	Different rational database management system	Microsoft SQL Server, MySQL, Microsoft Access, Oracle, Interbase, SQLite.
	Other	Statistical Analysis using R, SPSS, and Excel
<b>7.2 Personal</b>	Photography and Videography	Proficient usage of DSLR camera <a href="https://www.flickr.com/photos/mansour-ly/">flickr.com/photos/mansour-ly/</a>

[instagram.com/mansour.alsager](https://www.instagram.com/mansour.alsager)

Photo editing and graphic designing software

Proficient usage of Photoshop, Light room and Illustrator

## 8. TRAINING COURSES AND SEMINARS

- 8.1 Workshop on systematic literature review using Atlas.ti. 29, Sep, 2016. The UKM Graduate Centre, UKM.
- 8.2 Workshop on building a websites with content management system Joomla. 16-17, Jun, 2008. University teaching and learning centre, UUM.
- 8.3 Workshop on applying data mining technique using enterprise miner. 12-14, Aug, 2008. Instructor is Associate prof. Fadzilah Siraj.
- 8.4 Workshop on scientific research, the base of future. 10-15, Sep, 2005. Second national week of science and technology, National office of research and development.

## 9. Professional research experience

- 9.1 The 3rd International Multi-Conference on Artificial Intelligence Technology (M-CAIT 2016), Malacca, Malaysia on 23-24, Aug, 2016.  
Role: Session chairperson (3:30-5:00 pm, 23, Aug, 2016)
- 9.2 Project name: Advanced nature inspired computing for spatio-temporal climate change prediction analysis using Klang valley rainfall data  
Project code: AP-2013-007  
Amount: 2000RM  
Role: Graduate research assistance
- 9.3 Insertion based construction heuristic with cuckoo search metaheuristic for capacitated vehicle routing problem  
Duration: Sep, 2011-Dic, 2014  
Sponsor: Libya's People's Bureau Fund  
Amount: 60.000 RM  
Role: Fellowship

## 10. Volunteer experiences

- Computer basic skills tutor** Teaching disabled peoples in my home town Sabha, Libya.  
May, 2005 – Jun, 2005

## 11. Language

- English** Very good in writing reading and speaking

**Arabic**

Mother tongue, Excellent in Reading, Writing and Speaking

## **12. Hobbies**

- Reading, Photography, Swimming, Hiking, and Enjoying outdoors activities.

## **13. References (On Request)**

- 13.1 Associate Prof. Dr. Zulaiha Ali Othman** E-1-1, Blok E (Level 1 )  
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- 13.2 Prof. Madya Fadzilah Bt Siraj** School of computing , College of Arts and Sciences, Universiti Utara  
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# Research Statement

**Mansour Essgaer**

## **I n t r o d u c t i o n**

My research so far has primarily focused on solving optimization and decision problems more efficiently, using general-purpose techniques that can be applied to many different problem domains. As part of my Ph.D. thesis I used ideas from approximation algorithms and computational learning theory to improve the performance of algorithms for NP-hard problems such as printed circuit board problem (PCB) and capacitated vehicle routing problem (CVRP).

My Ph.D. thesis developed heuristic methods for solving NP-hard problems more efficiently in practice. Solving these problems as efficiently as possible is central to fields such as artificial intelligence, operations research, and computational biology. In my research, I developed simulated annealing in early stage for solving PCB. Later, the domain problem changed to capacitated VRP, whereby I used cheapest insertion heuristic and cuckoo search metaheuristic to solve the CVRP. Experimentally, I showed that my algorithms can be used to improve the performance of state-of-the-art algorithms for CVRP.

## **D e s i g n i n g   b e t t e r   a l g o r i t h m**

Performance of metaheuristic algorithm is highly dependent on its components and parameters to balance the search process between the intensification and diversification. The right choice of problem tailored algorithm can have significant effect to the quality of the result. Unfortunately, designing metaheuristic is not easy and time consuming. As it is mentioned in metaheuristic literature that in designing and testing new heuristic algorithms, only 10% of the total time is dedicated to algorithm development, while the remaining 90% is used for fine-tuning algorithm components and parameters. This fine-tuning process will get more difficult when involving different problem instances, where different instances may require different configuration.

Motivated by this phenomenon, we started our research with a research question: given a heuristic algorithm and a problem instance, how to set the algorithm components and parameters so that the algorithm will yield the best possible solution for set of different instances? To answer this research question, we propose cheapest insertion heuristic as constructive approach and cuckoo search algorithm as an improvement approach for solving the CVRP.

## **S u m m a r y**

In summary, I enjoy developing fundamental techniques for solving real problems in building reliable systems. I especially like the approach of experimentally evaluating my research on practical problems. I want to evaluate my future research in a similar way. In addition to writing papers and giving presentations at conferences and seminars, I have supervised an undergraduate research student. I am confident that I am well prepared for a productive academic career.

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