

## MANAR IBRAHIM FAWZI HOSNY

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**NATIONALITY:** Saudi

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### PERSONAL STATEMENT

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I am an Assistant Professor in the Computer Science Department, College of Computer and Information Sciences (CCIS), King Saud University (KSU), Riyadh, Saudi Arabia. I first joined the College of Computer and Information Sciences as the first and only Saudi female Teaching Assistant specialized in Computer Science in 1990.

I received a Bachelor of Science in Computer Science, with highest honors, from The American University in Cairo, Egypt, 1990. I have an MSc in Computer Science from The American University in Cairo, Egypt, 2000. I received a PhD in Computer Science from Cardiff School of Computer Science and Informatics, Cardiff University, UK, 2010.

I have an extensive teaching experience in many Computer Science subjects, such as Pascal, C, C++, Java, Assembly, Data Structures, Databases, Computer Graphics, Computer Medical Applications, Selected Topics in AI and Research Methods. I supervised several graduate and undergraduate projects and MSc theses. I am a qualified and skilled researcher and have many publications in well recognized conferences and journals. I am currently the vice chair of the computer science department, and have previously held several administrative posts in the college of computer and information sciences.

### EDUCATION

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- **PhD in Computer Science**

**Cardiff School of Computer Science and Informatics, Cardiff University, UK, 2010**

**Thesis Title:** "Investigating Heuristic and Meta-heuristic Algorithms for Solving Pickup and Delivery Problems"

**Supervisor:** Dr. Christine Mumford ([c.l.mumford@cs.cardiff.ac.uk](mailto:c.l.mumford@cs.cardiff.ac.uk))

**Specialization:** Scientific Computing and Optimization

- **MSc in Computer Science**

**The American University in Cairo, Egypt, 2000**

**GPA:** 3.913 out of 4.0

**Thesis Title:** "A Hybrid Genetic Annealing Approach for Solving the MAP Problem on Belief Networks"

**Supervisor:** Dr. Ashraf Abdelbar (abdelbar@aucegypt.edu)

- **BSc in Computer Science**

**The American University in Cairo, Egypt, 1990**

**GPA:** 3.868 out of 4.0 with Highest Honors

**Minor:** Mathematics

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## **WORK EXPERIENCE**

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- **Assistant Professor**

Computer Science Department, College of Computer and information Sciences (CCIS), King Saud University (KSU), Riyadh, Saudi Arabia (2011 – present)

- **Vice Chair of the Computer Science department**

College of Computer and information Sciences (CCIS), King Saud University (KSU), Riyadh, Saudi Arabia (May 2015 – present)

- **Assistant Vice Dean for Female Academic Affairs**

College of Computer and information Sciences (CCIS), King Saud University (KSU), Riyadh, Saudi Arabia (2013)

- **PhD Student**

Cardiff School of Computer Science and Informatics, Cardiff University, UK  
Scholarship financially sponsored by the CCIS, KSU (2006-2010)

- **Lecturer**

Information Technology Department, CCIS, KSU (2000 -2006)

- **MSc Student**

The American University in Cairo, Egypt  
Scholarship financially sponsored by the CCIS, KSU (1997-2000)

- **Teaching Assistant**

Computer Applications Department, CCIS, KSU (1990-1997)

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## **HONORS AND AWARDS**

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- Award of distinguished academic achievement from “Women’s Higher Education Symposium”, Riyadh, Saudi Arabia (2013).
- Best PhD poster award for third year PhD students, Cardiff School of Computer Science and Informatics (2009)
- Best PhD poster award for second year PhD students, Cardiff School of Computer Science and Informatics (2008)
- Best PhD presentation award for first year PhD students, Cardiff School of Computer Science and Informatics (2007)
- Three letters of recognition for outstanding achievement from the Saudi Cultural Attaché in London (2007, 2008, 2009)

- Highest Honors Bachelor Degree from the American University in Cairo (1990)
- Awards of outstanding academic achievement in the American University in Cairo (1986, 1987, and 1989)
- Merit Scholarship from the American University in Cairo (1986, 1987, and 1989)

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### **AREAS OF RESEARCH INTEREST**

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- Heuristic Algorithms
  - Meta-heuristic Algorithms
  - Evolutionary Algorithms
  - Combinatorial Optimization Problems
  - Nature Inspired Algorithms
  - Vehicle Routing Problems
  - Timetabling and Scheduling Problems
  - Data Mining
  - Bioinformatics
  - Affective Computing
  - Human Computer Interaction
  - E-learning
  - Ethics in Information Technology
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### **RESEARCH EXPERIENCE**

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#### **RESEARCH PROJECTS:**

- Augmenting Speech Language Rehabilitation Using Emotion Detection Based Brain Computer Interface (2015 on-going)
- A Swarm Intelligence Solution for the Selective Pickup and Delivery problem (2017-ongoing)
- A Two-Level Bio-inspired Algorithm for Multidimensional Data Clustering (2016-ongoing)
- An Intelligent Bio-Inspired Algorithm for the Faculty Scheduling Problem (2016)
- A Study on the Optimization of the P300 Region Based Speller for Brain-Computer Interface (2016)
- iNavi: Indoor Navigation for the Visually Impaired using User Centred Design.
- A Co-Evolutionary Algorithm for Multi-Dimensional Clustering (2016)
- A Multimodal Adaptive Genetic Clustering of Social Media Data (2015)

- PhyloBee: Phylogenetic Tree Construction Inspired by Bees Algorithm (2014)
- General Algorithmic Framework for Solving the Median Problem using genome Rearrangement Techniques (2014)
- A Hybrid Demon-Bees Algorithm for solving the University Course Timetabling Problem (2014)
- An Optimized Single Finger Arabic Keyboard Layout (2013)
- Wheelchair Navigation using BCI and Path Planning Optimization (2013)
- The Median Problem: A Hybrid Heuristic Approach with Application in Bioinformatics (2012)
- A Genetic Algorithm Based Examination Scheduling (2012)
- A Genetic Algorithm Approach for the Nurse Rostering Problem (2012)
- Using Facebook in Education: A Survey (2012)
- Emotional Intelligent Screener (2011)
- An Automatic Teachers to Courses Assignment Tool (2011)
- Genetic Algorithms for the University Timetabling Problems (2011)
- Investigating Heuristic and Meta-heuristic Algorithms for Solving Pickup and Delivery Problems (2010)
- A Hybrid Genetic Annealing Approach for Solving the MAP Problem on Belief Networks (2000)
- A Genetic Algorithm Approach for Document Clustering of Large Databases (1999)
- Tourist Planner: A Heuristic Based Approach (1990)

### **CONFERENCES ATTENDANCE:**

- The 17th International Conference on Human-Computer Interaction (HCII 2015), Los Angeles, California, USA, August 2015.
- The 22nd International Symposium on Mathematical Programming (ISMP 2015), Pittsburgh, PA, USA, July 2015.
- The Science and Information Conference 2014 (SAI'14), London, UK, August 2014.
- The International Conference on Advanced Science and Technology (ICAT'14), Antalya Turkey, August 2014.
- The 2013 International Conference on Genetic and Evolutionary Methods. Las Vegas, Nevada, USA, July 2013.
- The 2012 International Conference on Frontiers in Education, Computer Science and Computer Engineering (FECS'12), Las Vegas, Nevada, USA, July 2012
- The 2013 International Conference on Artificial Intelligence (ICAI'11), Las Vegas, Nevada, USA, July 2011
- Metaheuristic International Conference (MIC2009), Hamburg, Germany, July 2009
- Genetic and Evolutionary Computation Conference (GECCO '07), London, UK, July 2007

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### **MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

- Member of [IEEE](#) and IEEE Computational Intelligence Society
- Member in the Association for Computing Machinery [ACM](#)

- Member of the European Association for Theoretical Computer Science ([EATCS](#))
- Senior member of the International Association of Computer Science and Information Technology ([IACSIT](#)).
- Member of the review board of the Journal of Applied Research in Higher Education, the official Journal of the [HETL](#) (Higher Education Teaching and Learning) Association.

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## RESEARCH GROUPS MEMBERSHIP

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Member of the [Bioinformatics Research Group](#) in the CCIS

Member of the [SKERG](#) Research Group in the CCIS

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## SERVICE ACTIVITIES

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- Vice chair for the CS department, CCIS (May 2015- present)
- Assistant Vice Dean for Female Academic Affairs (2013)
- Member of the [External Joint PhD Supervision Program](#) Committee at KSU (2014-present)
- Vice head of the Alumni Unit at the College of Computer and Information Sciences (CCIS), KSU (2011-2012)
- Vice head of the Public Relations Unit at the CCIS (2012)
- Co-editor of the IT page in [KSU newspaper](#) (2011-2012)
- Member of the Manpower Committee at the Computer Science Department of the CCIS (2011-present)
- Member of the PhD committee at the Computer Science Department of the CCIS (2014-present)
- Member of the Masters Committee at the Computer Science Department of the CCIS (2012-2013)
- Member of the Bioinformatics Masters Program Development Committee at the Computer Science Department of the CCIS (2012)
- Member of the Career Day Committee at the CCIS (2012)
- Member of the Distinguished Faculty Rewarding Committee of the CCIS (2011)
- Member of the Scientific Gathering Committee, Center of Scientific and Medical Studies, KSU (2003-2004)

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## TRAINING

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- Stress Management (2013)
- Conflict Management (2013)
- Virtual Class Rooms (2012)
- Learning Management System (LMS) (2012)
- Student Examination and Assessment using LMS (2012)
- Blended Learning Using Blackboard (2012)
- Student Outcomes Assessment (2012)
- Micro Teaching (2012)
- Course Folder Design (2011)
- Effective University Teaching (2011)

## PUBLICATIONS

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1. Manar Hosny, Lubna Al Hinti, Sawsan Al Malak, "A Co-Evolutionary Framework for Adaptive Multidimensional Data Clustering", *Intelligent Data Analysis*, Volume 22(1), January (2018) (to appear).
2. Abeer Al-Nafjan, Manar Hosny, Areej Al-Wabil and Yousef Al-Ohali, "Classification of Human Emotions from Electroencephalogram (EEG) Signal using Deep Neural Network". *International Journal of Advanced Computer Science and Applications(IJACSA)*, 8(9), 2017. <http://dx.doi.org/10.14569/IJACSA.2017.080955>
3. Abeer Al-Nafjan, Manar Hosny, Areej Al-Wabil and Yousef Al-Ohali, "Electroencephalogram-based Emotion Detection". The 1st International Conference on Intelligent Human Systems Integration: Integrating People and Intelligent Systems (IHSI 2018), Dubai, United Arab Emirates, January 7-9, 2018 (to appear).
4. Ghada Badr, Manar Hosny, Nuha Bintayyash, Eman Albilali, and Souad Larabi Marie-Sainte. "BeamGA Median: A Hybrid Heuristic Search Approach". *International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering Vol:11, No:6*, 2017
5. Mohamed Amine Masmoudi, Emrah Demir, Manar Hosny. "Metaheuristic approaches for the multi-period vehicle routing problem with synchronization constraints and refueling". *Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog 2017)*, 10-12 Jul 2017 Amsterdam (Netherlands)
6. Mohamed Amine Masmoudi, Manar Hosny, Kris Braekers, Abdelaziz Dammak, "Three effective metaheuristics to solve the multi-depot multi-trip heterogeneous dial-a-ride problem", *Transportation Research Part E: Logistics and Transportation Review*, Volume 96, December 2016, Pages 60-80, ISSN 1366-5545, (<http://www.sciencedirect.com/science/article/pii/S1366554516304070>)
7. Badr, G., Hosny, M., Bintayyash, N., Albilali, E., & Larabi Marie-Sainte, S. "[BeamGA Median: A Hybrid Heuristic Search Framework](#)". *Proceedings of the 2016 on Genetic and Evolutionary Computation Conference Companion*. ACM, 2016.
8. Al-Malak, Sawsan, and Manar Hosny. "[A Multimodal Adaptive Genetic Clustering Algorithm](#)". *Proceedings of the 2016 on Genetic and Evolutionary Computation Conference Companion*. ACM, 2016.
9. Hosny, Manar, Rawan Alsarrani, and Abir Najjar. "[Indoor Wheelchair Navigation for the Visually Impaired](#)". Chapter HCI International 2015 - Posters' Extended Abstracts, Volume 529 of the series Communications in Computer and Information Science, pp. 411-417. Springer International Publishing, 2015.
10. Manar I. Hosny. "[Bridging the Gap between Theory and Practice in the Vehicle Routing Research](#)". *International Journal of Applied Mathematics, Electronics and Computers (IJAMEC)*, 2014, 2(3), pp. 15–18.
11. Alhuwaishel N, Manar H (2015) "[A Hybrid Bees/Demon Optimization Algorithm for Solving the University Course Timetabling Problem](#)". *Proceedings of the 3rd NAUN International Conference on Mathematical, Computational and Statistical Sciences*. Dubai, United Arab Emirates, February 22-24.
12. Nourah Alswaidan, Manar I. Hosny and Abir Benabid Najjar. "[A Genetic Algorithm Approach for Optimizing a Single-Finger Arabic Keyboard Layout](#)". In K. Arai et al. (eds.), *Intelligent Systems in Science and Information 2014*, Studies in Computational Intelligence 591, DOI 10.1007/978-3-319-14654-6\_16. © Springer International Publishing Switzerland 2015.

13. Wafa Alrajhi, Manar Hosny, Areej Al-Wabil, and Arwa Alabdulkarim. "[Human Factors in the Design of BCI-Controlled Wheelchairs](#)". In M. Kurosu (Ed.): Human-Computer Interaction, Part II, HCI 2014, LNCS 8511, pp. 513–522, 2014. © Springer International Publishing Switzerland 2014.
14. Manar Hosny, Nourah AlSwaidan, Abir Benabid Najjar "[An Optimized Single Finger Arabic Keyboard Layout](#)". Proceedings of the Science and Information Conference 2014. London, UK, August 2014.
15. Manar Hosny, Mohrah AlOlayan "[A Mutation Based Genetic Algorithm for Room and Proctor Assignment in Examination Scheduling](#)". Proceedings of the Science and Information Conference 2014. London, UK, August 2014.
16. Amani Al Ahmadi, Taghreed Al Amri, and Manar Hosny "[Time Efficient Demon Algorithm for Graph Coloring with Search Cut-off Property](#)". Proceedings of the Science and Information Conference 2014. London, UK, August 2014.
17. Manar Hosny and Shameem Fatima. "[Attitude of Students Towards Cheating and Plagiarism: University Case Study](#)". Journal of Applied Sciences. Vol 14 (8), PP. 748-757 March 2014
18. D. Al-Omar, A. Al-Wabil, and M. Hosny, "[Using Pupil Size Variation during Visual Emotional Stimulation in Measuring Affective States of Non Communicative Individuals](#)," in *Universal Access in Human-Computer Interaction. User and Context Diversity*. vol. 8010, C. Stephanidis and M. Antona, Eds., ed: Springer Berlin Heidelberg, 2013, pp. 253-258
19. Manar Hosny. "[A Heuristic Algorithm for the Faculty Assignment Problem](#)". *Journal of Communication and Computer*, 10 (2013) 287-294. David Publishing.
20. Manar Hosny & Najla Al Turiki. "A Genetic Based Tool for the Nurse Rostering Problem", in *Proceedings GEM'13 - The 2013 International Conference on Genetic and Evolutionary Methods*.
21. Manar I. Hosny and Shameem Fatima. "[Facebook in Education: Students, Teachers, and Library Perspectives](#)". Journal of Computing, Vol. 4, Issue 6, June 2012
22. Manar Hosny. "[TACO: An Automatic TAs to Courses Assignment Tool](#)". In Proceedings of the EdMedia 2012 Conference, Denver, Colorado, USA
23. Hosny, M.I., Mumford, C.L. "[Constructing initial solutions for the multiple vehicle pickup and delivery problem with time windows](#)". Journal of King Saud University – Computer and Information Sciences (2012) 24, 59–69
24. Manar Hosny and Shameem Fatima "[A Survey of Genetic Algorithms for the University Timetabling Problem](#)". In International Proceedings of Computer Science and Information Technology, Vol. 13, 2011
25. Manar Hosny. "[Heuristic Techniques for the Vehicle Routing Problem with Time Windows](#)". In International Proceedings of Computer Science and Information Technology, Vol. 13, 2011.
26. M. I. Hosny. "[Comparing Genetic Algorithms and Simulated Annealing for Solving the Pickup and Delivery Problem with Time Windows](#)". In H. R. Arabnia, D. de la Fuente, E. B. Kozerenko, and J. A. Olivas, editors, Proceedings of the 2011 International Conference on Artificial Intelligence, ICAI'11, Las Vegas, Nevada, USA, Vol. II, pages 513–CSREA Press, July 2011
27. Manar I. Hosny and Christine L. Mumford "[Solving the One-Commodity Pickup and Delivery Problem Using an Adaptive Hybrid VNS/SA Approach](#)" In Parallel Problem Solving from Nature – PPSN XI, Lecture Notes in Computer Science, Vol. 6293/2011, pages 189-198. DOI: 10.1007/978-3-642-15871-1\_20.
28. Manar I. Hosny and Christine L. Mumford: "[An adaptive hybrid VNS/SA approach to the one-commodity pickup and delivery problem](#)". GECCO (Companion) 2010: 2079-2080



29. Manar I. Hosny and Christine L. Mumford ["The Single Vehicle Pickup and Delivery Problem with Time Windows: Intelligent Operators for Heuristic and Metaheuristic Algorithms"](#). Journal of Heuristics, Special Issue on Recent Advances in Metaheuristics, Vol. 16, No 3, June 2010. DOI:10.1007/s10732-008-9083-1.
30. Manar I. Hosny and Christine L. Mumford ["Investigating Genetic Algorithms for Solving the Multiple Vehicle Pickup and Delivery Problem with Time Windows"](#) In MIC2009: Proceedings of the Metaheuristic International Conference, July 2009.
31. Manar I. Hosny and Christine L. Mumford ["New Solution Construction Heuristics for the Multiple-Vehicle Pickup and Delivery Problem with Time Windows"](#) In MIC2009: Proceedings of the Metaheuristic International Conference, July 2009
32. Manar I. Hosny and Christine L. Mumford ["Single Vehicle Pickup and Delivery with Time Windows: Made to Measure Genetic Encoding and Operators"](#). In GECCO '07: Proceedings of the 2007 GECCO conference companion on Genetic and evolutionary computation, pages 2489-2496
33. Ashraf M. Abdelbar, and Manar I. Hosny, "A Self-Adaptive Evolutionary Algorithm Applied to Bayesian Networks," Proceedings ISCA International Conference on Computers and Their Applications, Honolulu, Hawaii, 2007, pp. 118-122
34. Ashraf M. Abdelbar, and Manar I. Hosny, ["Finding Most Probable Explanations using a Self-Adaptive Hybridization of Genetic Algorithms and Simulated Annealing"](#), Proceedings 10th WSEAS International Conference on Computers, July 13-15, 2006, Vouliagmeni, Greece, pp. 800-806
35. Ashraf M. Abdelbar, and Manar I. Hosny, "Probabilistic Explanation with Genetic Algorithms and Simulated Annealing," WSEAS Transactions on Computers, Vol. 5, No. 10, October 2006, pp. 2162-2168
36. Ashraf M. Abdelbar and Manar I Hosny, ["An Adaptive Hybrid Genetic Annealing Technique Applied to Bayesian Networks"](#), Proceedings of ANNIE-04, ASME Press, New York, Vol. 14, pp. 45-50, 2004. ISBN: 0-7918-0228-0.

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