**<!doctype html public "-//w3c//dtd html 4.0 transitional//en"> Khaled Fatehy Hussain**

Address: Computer Science Department, Faculty of Computers and Information, University of Assiut, Assiut, Egypt. Email: Khussain@aun.edu.eg

Education

**University of Central Florida (UCF)**, Orlando, Florida, U.S.A.

Ph.D. in Computer Science, Dec. 2001, GPA 4.0/4.0.

Specialization areas: Computer vision, video compression, computer graphic, neural networks, and learning algorithms.

Dissertation topic: “*Image Processing and Learning for Computer Vision Enhancement*”.

**University of Assiut**, Assiut, Egypt.

M.S. in Electrical Engineering, Nov. 1996, Excellent

Specialization areas: Computer vision and neural networks.

Master’s Thesis topic: “*The use of shading for shape determination and neural network for object classification*”.

**University of Assiut**, Assiut, Egypt.

B. S. in Electrical Engineering, June 1994, Excellent with honor, GPA 4.0/4.0.

Specialization areas: Computer and Control.

Undergraduate Thesis topic: “Arabic/English C interpreter”.

#### Main Research Interests

Computer vision, Computer graphic, Augmented reality, Computer Animation, Virtual Reality, Learning algorithms, and Video compression.

Work Experience

**7/13 to present**

Chairman of the Multimedia Department, Faculty of Computers and Information, University of Assiut, Assiut, Egypt

Director of the Multimedia Laboratory, Faculty of Computers and Information, University of Assiut, Assiut

**3/13 to present**

Associate Professor, Computer Science Department, Faculty of Computers and Information, University of Assiut, Assiut

Director of the Multimedia Laboratory, Faculty of Computers and Information, University of Assiut, Assiut

**10/07 to 2/13**

Assistant Professor, Computer Science Department, Faculty of Computers and Information, University of Assiut, Assiut

Founder of the Multimedia Laboratory, Faculty of Computers and Information, University of Assiut, Assiut

**10/06 to 10/07**

Assistant Professor, Electrical Engineering Department, Faculty of Engineering, University of Assiut, Assiut

**8/02 to 8/06**

Visiting Assistant Professor, School of Computer Science, University of Central Florida, U.S.A.

**9/01 to 7/02**

Post-Doctoral, School of Computer Science, University of Central Florida, U.S.A.

**1/99 to 9/01**

Research Assistant, School of Computer Science, University of Central Florida, U.S.A.

**12/96 to 12/98**

Assistant Lecturer, Department of Electric Engineering, Assiut, Egypt.

**1/95 to 12/96**

Demonstrator, Department of Electric Engineering, Assiut, Egypt.

**6/93 to 9/98**

Database programmer, Assiut, Egypt.

## Teaching Experience

## Courses taught at the University of Assiut & Mina University, Egypt:

* Computer Graphics, graduate level
* Computer Vision, graduate level
* Image Processing, graduate level
* User Interface Design, graduate level
* Advanced Topics In Computer Science, graduate level
* Object-Oriented Software Engineering, graduate level
* Virtual Reality Systems, graduate level
* Advanced Topics in Fault-Tolerant Computing, graduate level
* Computer Graphics, undergraduate level
* Computer Vision, undergraduate level
* Computer Animation, undergraduate level
* Multimedia Systems, undergraduate level
* Electric Properties of Materials, undergraduate level
* Advanced Operating Systems, undergraduate level
* Introduction of Operating Systems, undergraduate level
* Computer Security, undergraduate level
* Power Electronic, undergraduate level
* Language and Programming, undergraduate level
* Introduction to Computers, undergraduate level
* Object Oriented Programming, undergraduate level
* Data Structures and Algorithms, undergraduate level
* Visual Programming, undergraduate level
* Analysis and Design of Algorithms, undergraduate level

## Courses taught at the University of Central Florida, USA:

* COP6614, Operating System Techniques, graduate level
* COP5611, Operating System Design, graduate level
* COP4600, Operating Systems, undergraduate level
* COP4520, Concepts of Parallel and Distributed Processing, undergraduate level
* COP3503, Computer Science II, undergraduate level
* COP3502, Computer Science I, undergraduate level
* COP3402, Systems Software, undergraduate level
* COT3100, Introduction to Discrete Structures, undergraduate level
* CDA3103, Computer Organization, undergraduate level

**Accomplished projects:**

* Supervisor of student HEEP2 project: developing an effective and quick way to collect views and questionnaires of students through scientific lessons (2011/2012)
* Establishing a Virtual Laboratories Developing Center (VLDC) (2007 to 2010)
* Augmented Reality Simulator for the Center for Advanced Transportation Systems Simulation, Orlando, Florida, USA (1/06 to 6/06).
* Simulation driven virtual objects in real scenes for U.S. army STRICOM (3/00 to 11/03).
* Vehicles classification software for Schwartz Electro-Optics (SEO), Orlando, Florida, USA (6/99 to 11/01).
* Software package for glass shops (6/93 to 9/98).
* Software package for graduate administration (7/95 to 8/96).
* Small software package for factory maintenance (2/94 to 4/94).
* Small software package for some big restaurants (9/97 to 10/97).
* Designing a small control system for Cement Factory in Assiut, Egypt (12/97 to 12/98).
* Two practical systems for classification of 3-D objects in C language for my M. S. Degree.
* Arabic/English C interpreter. As a graduating project for B.S.

Journal Publications

1. Mahmoud Afifi, Khaled F. Hussain, Hosny M. Ibrahim, Nagwa M. Omar, “A Low-cost System for Generating Near-realistic Virtual Actors,” 3D Research, Springer, 6:16, 2015.

<http://link.springer.com/article/10.1007%2Fs13319-015-0050-y>

1. Khaled F. Hussain, Samia A. Ali, Saher M. Malek, “An Efficient Approach for Automatic Cloth Panel Extraction from Pattern Images,” *International Journal of Computer Applications,* 98(3):15-22, July 2014, Published by Foundation of Computer Science, New York, USA. Link:

<http://research.ijcaonline.org/volume98/number3/pxc3897218.pdf>

1. Mahmoud Afifi, Mostafa Korashy, Ebram K. William, Ali H. Ahmed, and Khaled F. Hussain, “Cut off Your Arm: A Medium-Cost System for Integrating a 3D Object with a Real Actor”, International Journal of Image, Graphics and Signal Processing (IJIGSP), Vol. 6, No. 11, pp. 10-16, October 2014.
2. Khaled F. Hussain and Hanaa Aly Sayed, “Sky Detection Using K-HSV Descriptor”, *Journal of the Institute of Industrial Applications Engineers*, Vol.2, No.1, pp.1–5, Jan. 2014.
3. Yousef B. Mahdy, Khaled F. Hussain, and Mostafa A. Abdel-Majid, "Projector Calibration Using Passive Stereo and Triangulation," *International Journal of Future Computer and Communication,* Vol. 2, No. 5, Pages 385-390, 2013. Link: <http://www.ijfcc.org/index.php?m=content&c=index&a=show&catid=42&id=446>
4. Mohammed Yousef and Khaled F. Hussain, “Fast Exhaustive-Search Equivalent Pattern Matching through Norm Ordering,” *Journal of Visual Communication and Image Representation*, Elsevier, Vol. 24, Issue 5, Pages 592–601, July 2013. Link: <http://www.sciencedirect.com/science/article/pii/S1047320313000448>
5. Khaled F. Hussain, Essam Radwan, and Ghada Moussa,*”* Augmented Reality Experiment: Driver Behavior at Unsignalized Intersection*”,* *IEEE Transactions on Intelligent Transportation Systems,* Vol. 14, No. 2, Pages 608 - 617, 2013.

Link:http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=6353592&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F6979%2F4358928%2F06353592.pdf%3Farnumber%3D6353592

1. Khaled F. Hussain, Adel A. Sewisy, and Islam T. El-Gendy *“*Augmented Dressed Body System Controlled by Motion Capture Data,” *International Journal of Computing Academic Research (IJCAR)* Volume 2, Number 1 (February 2013), pp. 1-13. ISSN 2305-9184. Link: <http://meacse.org/IJCAR/Archives/10.pdf>
2. Mohammed Yousef and Khaled F. Hussain, “Performance Evaluation of Exhaustive-Search Equivalent Pattern Matching under Chebyshev distance,” *International Journal of Computing Academic Research* (*IJCAR*), Vol. 1, No. 2, pp. 79-87, December 2012. Link: http://meacse.org/IJCAR/archives/8.pdf
3. Mohammed Yousef, Ahmed Hashem, Hassan Saad, and Khaled F. Hussain, “ZLang: A Scripting Language for Digital Content Creation Applications,” *International Journal of Computer Applications,* 50(5):32-43, July 2012, Published by Foundation of Computer Science, New York, USA. Link: <http://research.ijcaonline.org/volume50/number5/pxc3880851.pdf>
4. G. S. Moussa, E. Radwan, and K. F. Hussain, “Augmented Reality Vehicle System: Left-Turn Maneuver Study*,” Journal of Transportation Research Part C: Emerging Technologies*, Elsevier, Vol. 21, No. 1, pp 1-16, April 2012. Link: <http://www.sciencedirect.com/science/article/pii/S0968090X1100115X>
5. Khaled F Hussain and Samia A Ali, “Automatic Cloth Panels Extraction and Resizing,” *International Journal of Computer Applications,* 36(7):52-59, December 2011, Published by Foundation of Computer Science, New York, USA. Link: <http://research.ijcaonline.org/volume36/number7/pxc3976373.pdf>
6. Samia A. Ali, Khaled F. Hussain, and Ahmed M. Sayed, “Fast Generation of Demolition Special Effects on 3D Buildings,” *Journal of Engineering Sciences*, Assiut University, Vol. 39, No 1, January 2011. Link: <http://www.aun.edu.eg/faculty_engineering/arabic/pAbstract.php?JP_ID=1052>
7. Khaled F. Hussain, Ahmed Mostafa, and Hany Madkour, “Developing virtual laboratories environments for engineering education,” *International Journal of Arts and Sciences*, 3(1): 9 – 17, GERMANY, Nov. 2009. Link: [www.openaccesslibrary.org/images/Hany\_Madkour.pdf](http://www.openaccesslibrary.org/images/Hany_Madkour.pdf).
8. E. Gelenbe, K. F. Hussain, and V. Kaptan "Simulating autonomous agents in augmented reality," *The Journal of Systems & Software*, Vol. 74/3, pp 255-268, 2005. Link: <http://portal.acm.org/citation.cfm?id=1052999>.
9. K. F. Hussain and V. Kaptan, "Modeling and simulation with augmented reality," *International Journal on Operations Research*, Vol. 38, No. 2, p89-103, 2004. Link: <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8225179>.
10. E. Gelenbe, K. F. Hussain, “Learning in the multiple class random neural network,” *IEEE Transactions on Neural Networks*, Vol. 13, No. 6, November 2002. Link: <http://ieeexplore.ieee.org>.
11. M. Zaki, Y. B. Mahdy, S. A. Ali, K. F. Hussain, “Two practical systems for classification of 3-D objects,” Journal of Systems and *Software*, Vol. 48, No. 1, p59-71, Aug. 1999. Link: <http://www.sciencedirect.com/science/article/pii/S016412129900045X>.

**Chapters in Edited Books**

E. Gelenbe, K. F. Hussain, V. Kaptan, "Enabling simulation with augmented reality", Performance Tools and Applications to Networked Systems, edited by M. C. Calzarossa and E. Gelenbe, Springer Publishing, ISBN: 3-540-21945-5, p. 290 – 310,2004.

**Selected Conference Papers**

1. Khaled F. Hussain and Hanaa Aly Sayed, “Enhancement of Sky and Cloud Type Classification”, IEEE/IIAE International Conference on

Intelligent Systems and Image Processing, Kyushu Institute of Technology, Kitakyushu, Japan, Sept. 2013.

1. Yahia Seleem, Marghny Mohamed, Khaled Hussain, “Improving Genetic Process Mining Using Honey Bee Algorithm”, International Conference on Informatics & Applications, ICIA 2013, p. 59-65, Lodz, Poland, Sept. 2013.

Link: <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6650230&queryText%3DImproving+Genetic+Process+Mining>

1. Mohammed Yousef and Khaled F. Hussain, “Fast Exhaustive-Search Equivalent Pattern Matching Through Hierarchical Partitioning,” IEEE International Conference on Image Processing (ICIP 2013), Melbourne, Australia, 2013.
2. Abdelrahman Kamel, Youssef B. Mahdi, Khaled F. Hussain, “Multi-Bin Search: Improved Large-Scale Content-Based Image Retrieval,” IEEE International Conference on Image Processing (ICIP 2013), Melbourne, Australia, 2013.
3. Mohammed Yousef and Khaled F. Hussain, “ParXII: Optimized, Data-Parallel Exemplar-Based Image Inpainting,” SIGGRAPH 2011, No.: 24. Link: <http://dl.acm.org/citation.cfm?id=2037744&dl=ACM&coll=DL&CFID=233060680&CFTOKEN=29823963>
4. Ghada Moussa and Khaled F. Hussain, ''A New Technique for Automatic Detection and Parameters Estimation of Pavement Crack'', the 4th International Multi-Conference on Engineering and Technological Innovation: IMETI 2011, July 19th - July 22nd, 2011, Orlando, Florida, USA. Link: <http://www.iiis.org/CDs2011/CD2011SCI/IMETI_2011/PapersPdf/FA884ZF.pdf>
5. Khaled F. Hussain and Aliaa T. Kamal, "Poisson Matting based on Exemplar-Based Inpainting,” The 2011 World Congress on Computer Science and Information Technology WCSIT'11, Cairo, Egypt, **25 January 2011**. Link: http://www.infomesr.org/attachments/031.pdf
6. Samia A. Ali, Khaled F. Hussain, and Ahmed M. Sayed, “Fast Generation of Demolition Special Effects on 3D Buildings,” International Conference on Computer Theory and Applications (ICCTA), Alexandria, Egypt, October 2010; Link: <http://iccta.aast.edu/2010/>.
7. Mohammed Yousef, Ahmed Hashem, Hassan Saad, Amr Gamal, Osama Galal, and Khaled F. Hussain, “A Scripting language for Digital Content Creation Applications,” SIGGRAPH 2010, No.: 103, Los Angeles, California, 2010. Link: <http://portal.acm.org/citation.cfm?id=1836956&dl=ACM&coll=DL&CFID=37864637&CFTOKEN=40086736>.
8. Khaled Hussain, “Augmented Reality Vehicle System,” International Conference on Image and Video Processing and Computer Vision, pp 39-45, Orlando, Florida, USA, July 12-14, 2010. Link: <http://www.promoteresearch.org/2010/proceedings-listing-2010/ivpcv10.html>.
9. G. S. Moussa, and K. F. Hussain, "Laser Intensity Automatic Vehicle Classification System," North American Travel Monitoring Exposition and Conference (NATMEC), Washington DC, USA, August 2008. Link: <http://www.trb.org/Conferences/2008/NATMEC/files/NATMEC.pdf>.

<http://onlinepubs.trb.org/onlinepubs/archive/conferences/2008/natmec/files/Moussa.pdf>

1. G. S. Moussa, E. Radwan, and K. F. Hussain, “Augmented Reality Applications to Traffic Operations,” *Ninth International Conference on Applications of Advanced Technology in Transportation (AATT06)*, Chicago, USA, 2006. Link: <http://cedb.asce.org/cgi/WWWdisplay.cgi?153576>.
2. K. Hussain, S. Rajan, N. Addulla, and G. Moussa, “No-capture hardware feature for securing sensitive information,” *IEEE International Conference on Information Technology: Coding and Computing*, ITCC, Las Vegas, NV, USA, April 2005. Link: <http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1428545>.
3. K. Hussain and G. Moussa, “Automatic vehicle classification system using range sensor,” *IEEE International Conference on Information Technology: Coding and Computing*, ITCC, Las Vegas, NV, USA, April 2005. Link: <http://portal.acm.org/citation.cfm?id=1059181>
4. K. F. Hussain and S. Sapre, “Identifying criminal activities at the operating system level,” *SPIE Symposium on Defense and Security*, Orlando, FL, USA, March 2005. Link: <http://spie.org/x648.html?product_id=603044>.
5. K. Hussain, N. Addulla, S. Rajan, and G. Moussa, “Preventing the capture of sensitive information,” The *43rd annual ACM Southeast Conference*, Kennesaw, GA, USA, March 2005. Link: <http://portal.acm.org/citation.cfm?id=1167291>.
6. K. Hussain and G. Moussa, “Laser intensity vehicle classification system based on random neural network,” The *43rd annual ACM Southeast Conference*, Kennesaw, GA, USA, March 2005. Link: <http://portal.acm.org/citation.cfm?id=1167372>.
7. E. Gelenbe, V. Kaptan, K. F. Hussain, “Simulating the navigation and control of autonomous agents,” The *7th International Conference on Information Fusion*, Stockholm, Sweden, July 2004. Link: <http://www.fusion2004.foi.se/papers/IF04-0183.pdf>.
8. E. Gelenbe, K. F. Hussain, V. Kaptan, “Simulation with augmented reality,” Proceedings of the *11th IEEE/ACM International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems* (MASCOTS), Orlando, FL, October 2003.
9. E. Gelenbe, K. F. Hussain, V. Kaptan, “Realistic simulation of cooperating robots,” *Proc. CTS 2003 (International Symposium on Collaborative Technologies and Systems)*, WMC '03 Society for Computer Simulation, pp. 151-156, Orlando, FL, Jan. 19-23, 2003.
10. E. Gelenbe, K. Hussain, V. Kaptan, M. Kalphat, J. Stahl, “Robotic simulation with real-time augmented reality,” *Army Science Conference*, Orlando, Oct. 2002.
11. E. Gelenbe, K. Hussain, V. Kaptan, “Simulating autonomous agents with augmented reality,” *SPIE Conference 4716*, Orlando, FL, session 5, Apr. 1-5, 2002. Link: <http://spie.org/x648.html?product_id=474906>.
12. E. Gelenbe, K. F. Hussain, V. Kaptan, “Simulating autonomous agents with augmented reality,” Opening Keynote Lecture, Proc. Games-On, *Second International Conference on Intelligent Games and Simulation*, Society for Computer Simulation (SCS), London, November 30-December 1, 2001.
13. H. E. Abdelbaki, K. F. Hussain, E. Gelenbe, “A laser intensity image based automatic vehicle classification system,” *IEEE Intelligent Transportation Systems Conference proceedings*, Oaklad (CA), August 25-29, 2001. Link: <http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=948701>.
14. E. Gelenbe, K. F. Hussain, “Learning and generating color textures with recurrent multiple class random neural networks,” *SPIE Electronic Imaging 2001 conference*, San Jose (CA), January 20-26, 2001. <http://www.imaging.org/ist/store/physpub.cfm?seriesid=24&pubid=447>.
15. F. Hai**,** K. F. Hussain, E. Gelenbe, R. Guha, “Video compression with wavelets and random neural network approximations,” *SPIE Electronic Imaging 2001 conference*, San Jose (CA), January 20-26, 2001. Link: <http://www.imaging.org/ist/store/physpub.cfm?seriesid=24&pubid=447>.
16. B. Foss, E. Gelenbe, K. F. Hussain, N. Lobo, and H. Bahr, “Simulation driven virtual objects in real scenes,” *ITSEC 2000*, orlando Florida. 2000. Link: <http://ntsa.metapress.com/link.asp?id=5x1wp3ar7qdwrund>.
17. E. Gelenbe, K. F. Hussain, H. E.  Abdelbaki, “Random neural network texture model,” *SPIE Electronic Imaging 2000 conference*, January 2000. Link: <http://spie.org/x648.html?product_id=382903>.
18. M. Zaki, Y. B. Mahdy, S. A. Ali, K. F. Hussain, “A fast backpropagation  algorithm  based  on  a simple sigmoid-like activation function,” *4th ICAIA of American University in Egypt*, pp. 56-67, Jan 1996.
19. M. Zaki, Y. B. Mahdy, S. A. Ali, K**.** F. Hussain, “Digital VLSI implementation   of   a   simple   sigmoid-activation function and its derivative,” *4th ICAIA of American University in Egypt*, pp.90-97, Jan 1996.
20. M. Zaki, Y. B. Mahdy, S. A. Ali, K. F. Hussain, “Efficient algorithms for 3-D shape determination from a shaded image,” *4th ICAIA of American University in Egypt*, pp.110-121, Jan 1996.

**Professional Societies**

Member of the IEEE and the ACM Societies

## M.S. and Ph.D Graduate Students:

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| **م** | **عنوان الرسالة** | **اسم الطالب** | **الكلية المسجل بها** | **الجامعة** | **الدرجة** | | **تاريخ المنح** |
| **ماجستير** | **دكتوراه** |
| 1 | Poisson Matting based on Exemplar-Based Inpainting  معالجة الشفافية بإستخدام طريقة بواسون المعتمدة علي طريقة تقدير شكل الخلفية | Alia Tariq Kamal Abdel-Hamid  علياء طارق كمال عبد الحميد | علوم | اسيوط | ماجستير |  | 2011 |
| 2 | Fast Generation of Realistic Special Video Effects  التوليد السريع لتأثيرات الفيديو الخاصة الواقعية | Ahmed M. Sayed  احمد محمد سيد أحمد حسن | هندسة | اسيوط | ماجستير |  | 2011 |
| 3 | An Efficient Algorithm for Template Matching  خوارزميه سريعه لمضاهاة أنساق الصور | Mohamed Yousef  محمد يوسف بسيوني مهدي | حاسبات | اسيوط | ماجستير |  | 2013 |
| 4 | Augmented Clothes Controlled by a Motion Capture System  التحكم فى الملابس التخيلية عن طريق نظام التقاط الحركة | Islam Elgendy  إسلام طه مرسي الجندي | حاسبات | اسيوط | ماجستير |  | 2013 |
| 5 | 3d Face Reconstruction and Animation  إعادة بناء وجه ثلاثي الأبعاد وإجراء الحركه عليه | Mostafa Abo-bakr  مصطفي أبوبكرعبدالمجيد سالم | حاسبات | اسيوط | ماجستير |  | 2013 |
| 6 | Real-Time Large-Scale Content-Based Images Retrieval  الاسْتِرْجَاعُ الْآنِىُّ لِلصُّوَرِ بِنَاءً عَلَى الْمُحْتَوَى عَلَى نِطَاقٍ وَاسِعٍ | Abdelrahman Kamel  عبدالرحمن كامل صديق | حاسبات | اسيوط | ماجستير |  | 2014 |
| 7 | Interactive Face Image Deformation Based on Bounded Biharmonic Weights  اسلوب تفاعلي لإعادة تشكيل صورة الوجه مبنياً على الأوزان ثنائية التوافق المحدودة | Fatma Abd-Elhaleem Hussein Abd-Elhaleem  فاطمة عبدالحليم حسين عبدالحليم | علوم | اسيوط | ماجستير |  | 2014 |
| 8 | Enhancement of the Exemplar Based Image Inpainting  تحسين طريقه تعديل الصور بإستخدام الأجزاء المتشابهة | Sara Tariq Kamal Abdel-Hamid  سارة طارق كمال عبد الحميد | علوم | اسيوط | ماجستير |  | 2014 |
| 9 | Designing a program using animation & its effect upon the level of the fundamental motor skills in children from (4-6) years  تصميم برنامج بإستخدام الرسوم المتحركة وتأثيرة على مستوي اداء المهارات الحركية الأساسية للأطفال من (4-6) سنوات | Mohammed Abd-Elazem Mohammed  محمد عبد العظيم محمد عبد الحميد | تربية رياضية | اسيوط |  | دكتوراه | 2013 |
| 10 | Outdoor Image Compression Based on Sky Replacement  ضغط الصور الخارجية باستبدال السماء | Hana Ali Sayed Ali  هناء علي سيد علي | علوم | اسيوط |  | دكتوراه | 2014 |
| 11 | Novel Multimedia Data Hiding Schemes  طرق جديدة لإخفاء البيانات في الوسائط المتعددة | Mohamed Ali Attia Elsayed  محمد علي عطية | حاسبات | اسيوط |  | دكتوراه | 2013 |