Mahmoud Afifi

PhD Student (Computer Science)

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▬▬▬ Personal Information

Gender	Male
Date of Birth	November 20th, 1988
Nationality	Egyptian
Languages	Arabic and English
Military Status	Fulfilled *2010-2011*

▬▬▬ Education

2013–2015   **Masters of IT/Multimedia**, *IT Dept., Assiut University*, Egypt.

Thesis
A Low-cost Virtual Realistic Actor System

Supervisory Committee
Professor Hosny M. Ibrahim & Associate Professor Khaled F. Hussain & Dr. Nagwa M. Omar.

Description
This thesis presents a low-cost system for generating a realistic virtual actor system based on blending real facial features with digital heads.

2010–2011   **Pre-master's in IT**, *Faculty of Computers and Information, Assiut University*, Egypt.

2005–2009   **Bachelor of Information Technology "with Honors" (Ranked First in Graduating Class)** , *Faculty of Computers and Information, Assiut University*, Egypt.

GPA
90.49%

Graduation Project
Digital Facial Animations: a system for capturing the real facial animations to be applied on a CG face.

Experience

2017– present **Teacher Assistant**, *Lassonde School of Engineering, Department of Electrical Engineering and Computer Science*, York University Toronto, Canada.
Courses taught:
- SC/MATH3241 B - Numerical Methods I
- EECS1520 Computer Use: Fundamentals
- EECS 2031 Software Tools
- EECS 2011 Fundamentals of Data Structures

2011–2016 **Teacher Assistant**, *Faculty of Computers and Information, IT Department*, Assiut University, Egypt.
Courses taught:
- IT101 IT Fundamentals
- CS351 Computer Graphics
- CS451 Computer Animations
- IT414 Multimedia Systems
- MM302 Introduction to Digital Video Processing

2011–2015 **Demonstrator (Part Time)**, *Egyptian E-Learning University*, Egypt.
Courses taught:
- ITF101 Introduction to Information Technology
- SWE102 Programming Techniques (2)
- HCI302 Computer Graphics
- HCI403 Multimedia and Virtual Reality

Publications

International Journals

2017 [J-5] Islam Taj-Eddin, **Mahmoud Afifi**, Mostafa Korashy, Ali H. Ahmed, Ng Yoke Cheng, Evelyng Hernandez, and Salma M. Abdel-latif. "Can We See Photosynthesis? Magnifying the Tiny Color Changes of Plant Green Leaves Using Eulerian Video Magnification.", Journal of Electronic Imaging, SPIE, 6, 2017.

2015 [J-4] **Mahmoud Afifi** and Khaled F. Hussain. "MPB: A modified Poisson blending technique", Computational Visual Media (CVM) , Springer, 1(4), 331-341, 2015.

2015 [J-3] **Mahmoud Afifi**, Khaled F. Hussain, Hosny M. Ibrahim, and Nagwa M. Omar. "A Low-cost System for Generating Near-realistic Virtual Actors", 3D Research, Springer, 6(2), 50:1-50:21, 2015. Watch the video.

2015 [J-2] **Mahmoud Afifi** and Khaled F. Hussain, "What is the Truth?: A Survey of Video Compositing Techniques", International Journal of Image, Graphics and Signal Processing (IJIGSP), 7(8), 13-27, 2015. Watch the video

2014 [J-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), 6(11), 10-16, 2014. Watch the video

International Conferences

2016   [C-6] I. A. T. F. Taj-Eddin, **M. Afifi**, M. Korashy, D. Hamdy, M. Nasser and S. Derbaz, "A new compression technique for surveillance videos: Evaluation using new dataset." In The Sixth International Conference on Digital Information and Communication Technology and its Applications (DICTAP), Konya, Turkey, 159-164, IEEE, 2016.

2015   [C-5] **Mahmoud Afifi**,"Video Flash Matting: Video Foreground Object Extraction Using an Intermittent Flash." In The 1st International Conference on Advanced Intelligent System and Informatics, Egypt, 103-113, Springer International Publishing, 2016. Watch the video.

2015   [C-4] Ali H. Ahmed, **Mahmoud Afifi**, Mostafa Korashy, Ebram K. William, Mahmoud Abd El-sattar, and Zenab Hafez, "OCR System for Poor Quality Images Using Chain-Code Representation." In The 1st International Conference on Advanced Intelligent System and Informatics, Egypt, 151-161, Springer International Publishing, 2016.

2015   [C-3] **Mahmoud Afifi**, Mostafa Korashy, Ali H. Ahmed, Zenab Hafez, and Marwa Nasser, "Telepresence Robot Using Microsoft Kinect Sensor and Video Glasses." In The 1st International Conference on Advanced Intelligent System and Informatics (AISI), 91-101, Egypt, Springer International Publishing, 2016.

2014   [C-2] **Mahmoud Afifi**, Khaled F. Hussain, Hosny M. Ibrahim, and Nagwa Omar, "Fast Video Completion using Patch-based Synthesis and Image Registration", In International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS), Kuching, Malaysia, 200-204, IEEE, 2014. Watch the video.

2014   [C-1] **Mahmoud Afifi**, Khaled F. Hussain, Hosny M. Ibrahim, and Nagwa Omar, "Video Face Replacement System Using a Modified Poisson Blending Technique.", In International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS) , Kuching, Malaysia, 205-210, IEEE, 2014. Watch the video.

Unpublished Work

2017   [U-5] **Mahmoud Afifi**."Gender Recognition and Biometric Identification Using a Large Dataset of Hand Images." arXiv preprint arXiv:1711.04322, 2017.

2017   [U-4] **Mahmoud Afifi** and Khaled F. Hussain."The Achievement of Higher Flexibility in Multiple Choice-based Tests Using Image Classification Techniques." arXiv preprint arXiv:1711.00972, 2017.

2017   [U-3] **Mahmoud Afifi**, Marwa Nasser, Mostafa Korashy, Katherine Rohde, Aly Abdelrahim. "Can We Boost the Power of the Viola-Jones Face Detector Using Pre-processing? An Empirical Study." arXiv preprint arXiv:1709.07720, 2017.

2017   [U-2] **Mahmoud Afifi**, and Abdelrahman Abdelhamed. "AFIF4: Deep Gender Classification based on AdaBoost-based Fusion of Isolated Facial Features and Foggy Faces." arXiv preprint arXiv:1706.04277, 2017.

2015   [U-1] **Mahmoud Afifi** and Mostafa Korashy. "Eyeglasses Shop: Eyeglasses Replacement System Using Frontal Face Image", ICMIS 2015 the 4th International Conference on Mathematics and Information Science, Zewail City of Science and Technology, Egypt, 2015.

Datasets

2016   [D-4] **11KHands (2016):** A collection of 11,076 hand images for gender and recognition, and bio-metric identification.

2016   [D-3] **MCQ Tests:** Scanned answer sheets of six real MCQ tests (735 answer sheets and 33,540 answer boxes).

2016   [D-2] **Specs on Faces (SoF) Dataset:** A collection of 42,592 images for 112 persons for gender classification, face detection, eyeglasses detection, emotion recognition, and facial landmark detection.

2016   [D-1] **Surveillance Videos dataset:** several surveillance videos cover 7 days with 24 hours each for video compression.

Awards

2017   Lassonde Graduate Entrance Scholarship (LGES), York University, Canada

2017   York Graduate Scholarship (YGS), York University, Canada

2010   Best short CG film, Assiut University, Egypt Education ATM film won the Best CG Short Film Award in the Fourth Forum of Egyptian Faculties of Computer and Information Science

2001   Won in the Research Science Competition: The best participate in the Research Science Competition which was held by Club Science, Directorate of Education in Assiut, Egypt.

Tutorials

Articles

2016   [T-11] Image Posterization Using Fuzzy Logic and Bilateral Filter

2015   [T-10] How to Make a 2D Player Character Using Unity: Mahmoud Afifi, How to Make a 2D Player Character Using Unity, ACM Assiut Student Chapter Magazine, Vol. 1, PP 32–36, 2015.

Videos

2015   [T-9] Introduction to Game Development Using Unity3D: On-line technical training on game development using Unity3D. These tutorials are under the technical training program that is provided by the ACM Assiut Student Chapter.

2012   [T-8] Autodesk 3Ds Max: more than 780 minutes of free tutorial videos covering: 3D modeling, materials, lighting, an introduction to animations, and rendering.

2012   [T-7] CLO 3D: tutorial videos (more than 30 minutes) represent an introduction to 3D clothing using CLO 3D software.

2012   [T-6] 3D Animations: more than 400 minutes of free tutorial videos providing the following topics using Autodesk 3Ds Max: keying animations, linking (FK and IK), reaction manager, physique and morpher modifiers, facial expressions, character studio, particle flow, and Reactor.

2012   [T-5] Endorphin: more than 90 minutes of free tutorial videos about generating computer simulations of animated characters using NaturalMotion Endorphin.

2012   [T-4] Craft Director: a free tutorial video (roughly 20 minutes) as an introduction to vehicle simulations using Craft Director with Autodesk 3Ds Max.

2012   [T-3] Real Flow: free tutorial videos (approximately 100 minutes) providing an introduction to fluid particle simulation using Real Flow software.

2012   [T-2] Adobe Photoshop: roughly 50 minutes of free tutorial videos as an introduction to image editing using Adobe Photoshop software.

2012   [T-1] Adobe Premiere Pro: approximately 100 minutes free tutorial videos providing an introduction to video editing using Adobe Premiere software.

Projects

2017   **[P-16] Analysis and Grouping of Pedestrian Trajectories:** discovery framework of pedestrian groups (PhD course project - team member).

2017   **[P-15] Semantic Color Consistency using Convolutional Neural Network (SC-CCNN):** Semantic-based white balance using convolutional neural network (PhD course project - individual).

2016-2017   **[P-14] Bio-metrics Recognition:** a robust system(s) for primary and soft bio-metric recognition (i.e. identification gender classification and age estimation) (Research Project).

2016-2017   **[P-13] MCQ Marking System:** a template-free system for grading multiple choice questions using deep learning (Research Project).

2016   **[P-12] Image-based Product Recognition:** a product recognition system to classify products using only captured images in order to overcome the problems of the barcode system (Assistant Supervisor).

2016   **[P-11] Video Content Aware Splitter for Big Surveillance Video Data:** a system for record only the key frames, i.e., frames that contain changes in the scene (Assistant Supervisor).

2015   **[P-10]** Talaam: a 3D game for teaching children math, magnetic, and buoyancy concepts. This project has been used in a research in the Faculty of Education, Assiut University, Egypt (Individual Work).

2015   **[P-11]** Binary Collector: a 2D game to improve the ability to convert from decimal to binary (Team manager).

2013-2015   **[P-8] A Low-cost Near-Realistic Virtual Actor:** a low-cost system for generating near-realistic virtual actor using image blending techniques, (MSc).

2015   **[P-7] Heart Simulator:** a mobile application to simulate the anatomy of the heart to aid students in the School of Medicine using a 3D model of the heart (Assistant Supervisor).

2013   **[P-6] Chroma Keying:** a system for separating an actor from the original footage using Chroma keying techniques (Assistant Supervisor).

2009   **[P-4] Skin Detector:** a computer vision system for detecting skin color in a given video.

2009   **[P-3]** Digital Facial Animations: a system for capturing the real facial animations to be applied to a CG face (Graduation Project).

2009 **[P-3] Skin Detector:** a computer vision system to detect skin color in a given video, (Undergraduate).

2008 **[P-2] MobiUsed:** a website to facilitate buying and exchanging used mobile devices among customers (Undergraduate).

2007 **[P-1] BackToSchool:** a social networking website to meet old fellow students from school (Undergraduate).

Art Work

2011-2013 Turbosquid Products: Head over to Turbosquid account

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2011 Blade Watch: a CG ad of Blade Watch.

2011 7Up: a CG ad of 7Up.

2011 Mirror's Errors: a 3d short film about a stupid robot that loves itself.

2009 Education ATM: a short film titled Education ATM. The goal of the Education ATM is to help in solving education problems and to encourage students to learn. Solving the education problems will help in solving the other Millennium Goals such as the Poverty, Environmental Sustainability, and the Child Health. This short film participated in the imagine cup competition and arrive to the semi-final in it.

2009 Peugeot Bike: a CG ad of Peugeot bike.

2009 The Rat: a 3D short film shows a rat perspective of the world.

Certificates

2016 Principles of Machine Learning: Microsoft

2015 Lecturer Preparation: Faculty of Education, Assiut University, Egypt.

2014 Conference Organization: Faculty and Leadership Development Center-Assiut University.

2014 University Administration: Faculty and Leadership Development Center-Assiut University.

2013 International Publishing of Research: Faculty and Leadership Development Center-Assiut University.

2012 How to Write a Scientific Paper: German Academic Exchange Service (DAAD)-Egypt.

2012 Communication Skills: Faculty and Leadership Development Center-Assiut University.

2011 Legal and Financial Aspects in University Environment: Faculty and Leadership Development Center-Assiut University.

2011 Credit Hour System: Faculty and Leadership Development Center-Assiut University.

Volunteer work

2015–2016 **Vice Chair**, *ACM Assiut Student Chapter*, Egypt.

2015–2016 **Supervisor**, *ACM Assiut Student Research Lab*, Egypt.

2015   **Organizer**, *The International Workshop on BioDialog under the DAAD framework, In cooperation with Friedrich-Schiller University - Germany, Ain Shams University - Egypt, and Sfax University - Tunisia*, Assiut University, Egypt.

2008-2009   **Student activities**, *Scientific and technological activity*, Faculty of Computers and Information, Assiut University, Egypt.

Societies

2015–2016   Member of ACM

2014–2015   Member of IEEE

Technical Skills

Operating Systems
: Windows Platforms

Document and Office Apps
: Microsoft Office, Google Docs, and LaTeX

Programming Languages
: C++/C#, Java, fair knowledge of R

Scripting Languages
: Matlab, fair knowledge of Python and MaxScript

Web
: Fair knowledge of: ASP.Net, HTML, and Google Script

Database Management Systems
: Microsoft SQL Server

Computer Graphics
: OpenGL, 3D Modeling (using Autodesk 3Ds Max), and fair knowledge of XNA

Computer Animations
: OptiTrack: motion capture system, Microsoft Kinect, particle systems (using Autodesk 3Ds Max), key animations (using Autodesk 3Ds Max), character animations (using Autodesk Character studio/3Ds Max), simulations (using Autodesk Reactor/3Ds Max, Craft Director, Real Flow, Endorphin, CLO 3D)

Game Development
: Unity3D

Machine Learning
: fair knowledge of Microsoft Azure ML

Image and Video Processing
: OpenCV, ImageMagick, VisioForge, Image editing (using Adobe Photoshop), video editing and compositing (using Adobe After Effect and Adobe Premiere), 2D tracking (using mocha planar tracking), and 3D tracking (using boujou | VICON)

Audio Processing
: Audio editing and compositing (using Adobe Audition), and fair Knowledge of: OpenAI, Microsoft Speech API (SAPI), and Microsoft.DirectX.DirectSound