Mostafa Abdelrahman

CONTACT
INFORMATION

Assistant Professor
Assiut University, Faculty of Engineering,
Electrical Engineering Department, RM# 212
Assiut A.R.E., 71515 *Mobile:* +2-010-1150-6665
E-mail:
mostafa.a.abdelrahman@gmail.com

RESEARCH
INTERESTS

Theoretical and computational methods in metric geometry and their application to problems in computer vision, pattern recognition, shape analysis, computer graphics, image processing, and machine learning. Also facial recognition under varying pose, illumination, occlusion and expression.

EDUCATION

University of Louisville, Louisville, Kentucky, USA

Ph.D.,Electrical and Computer Engineering, 2013.

- Thesis Topic: *Geometric Modeling of Non-Rigid 3D Shapes: Theory and Application to Object Recognition.*
- GPA : 4 out of 4
- Advisor: Professor Aly A. Farag

Assiut University,Assiut, Egypt

M.Sc., Faculty of Eng., Electrical & Computer Engineering Dep. June , 2006

- Thesis Topic: *Design of Different Compensators for Double Integrator Plants*

B.Sc., Faculty of Eng., Electrical & Computer Engineering Dep., May 2001

- GPA: 4 out of 4 (Distinction With Honors - First of Class)
- Project: Design of Multi-drop Serial Industrial Bus

ACADEMIC
APPOINTMENTS

Assistant Professor   October 2014 to present

Faculty of Eng., Electrical & Computer Engineering Dep.,
Assiut University, Assiut, Egypt

Postdoctoral Associate   January 2014 to June 2014

Rapid Prototyping Center,
J.B. Speed School of Engineering, University of Louisville, Louisville, KY 40292

Research and Development:

- Quality certification for additive manufacturing and 3D printing using thermal imaging.

Graduate Research Assistant   January 2009 to December 2013

CVIP Lab. Department of Electrical and Computer Engineering,
University of Louisville

Research and Development:

- Shape analysis and classification: develop a flexible and efficient methods for shape representation, especially for non-rigid 3D shapes.
- Face recognition and identification at a distance for indoor and outdoor environments (2D and 3D).
- Human face 3D reconstruction from stereo Images.
- Remote Sensing for Surveillance of Critical Infrastructure.
- Human jaw reconstruction and analysis from optical imaging for orthodontic treatments
- Distinction between autistic corpus callosum and normal ones for autism diagnosis

Graduate Research Assistant   May 2003 to December 2008

Faculty of Eng., Electrical & Computer Engineering Dep.,
Assiut University, Assiut, Egypt

Research and Development:

- Control System Design using optimal time, optimal energy, adaptive fuzzy logic controller, and genetic optimization.

OTHER WORKING EXPERIENCE

Internship   May 2010 - July 2010 (3 months)
DynaVox Technologies,
Activities:

- Facial key points extraction

Part Time Trainer   August 2007 - December 2009

- Siemens Control Systems Laboratory, Assiut University
Activities:
  - Teaching Siemens SIMATIC Manager, PCS7, WINCC, PDM, Sensors and Communication, and Standard, and Drives inverter (MM4).

APPRENTICESHIPS AND TRAINING

Siemens Control Systems   July 2007,Siemens Egypt.
Content:

- Siemens SIMATIC Manager, PCS7, WINCC, PDM, Sensors and Communication, and Standard, and Drives inverter (MM4).

PUBLICATIONS

- **M. Abdelrahman**, T.L. Starr: Layerwise Monitoring of Polymer Laser Sintering Using Thermal Imaging, Proceedings of the 25rd Annual International Solid Freeform Fabrication Symposium (SFF 2014), The University of Texas at Austin.
- **M. Abdelrahman**, M. T. El-Melegy, A. Farag: A Novel Approach for 3D Object Classification using Sparse Scale Invariant Heat Kernels. Pattern Recognition Letters, (2014) under review.
- **M. Abdelrahman**, M. T. El-Melegy, A. Farag: Heat Front Propagation Contours for 3D Face Recognition. Proc. of IEEE Sixth International Conference on Biometrics: Theory, Applications and Systems (BTAS 2013).
- A. Cerri, S. Biasotti, **M. Abdelrahman**, J. Angulo, K. Berger, L. Chevallier, M. El-Melegy, A. Farag, F. Lefebvre, A. Giachetti, H. Guermoud, Y.-J. Liu, S. Velasco-Forero, JR. Vigouroux, C.-X. Xu, J.-B. Zhang, SHREC'13 Track: Retrieval on textured 3D models. Eurographics Workshop on 3D Object Retrieval (2013).
- J. Machado, A. Ferreira, P. B. Pascoal, **M. Abdelrahman** , M. Aono , M. El-Melegy, A. Farag, H. Johan, B. Li, Y. Lu, A. Tatsuma, SHREC 2013: Retrieval of objects captured with low-cost depth-sensing cameras, Eurographics Workshop on 3D Object Retrieval (2013).
- **M. Abdelrahman**, M. El-Melegy, A. Farag: 3D Object Classification using Scale Invariant Heat Kernels with Collaborative Classification. NORDIA ECCV workshop 2012.
- **M. Abdelrahman**, M. El-Melegy, A. Farag: Heat Kernels for Non-Rigid Shape Retrieval: Sparse Representation and Efficient Classification. CRV 2012: 153-160.
- **M. Abdelrahman**, A. Ali, S. Elhabian, H. Rara, and A. Farag. A Passive Stereo System for 3D Human Face Reconstruction and Recognition at a Distance. IEEE CVPR Workshop on Biometrics, pp. 17 - 22, June 2012.
- **M. Abdelrahman**, A. Ali, A. Farag, M. Casanova, A. Farag: New Approach for Classification of Autistic vs. Typically Developing Brain Using White Matter Volumes. CRV 2012.
- A. Abdelrehim, **M. Abdelrahman**, H. Abdelmunim, A. Farag, and M. Miller, Novel Image-Based 3D Reconstruction of the Human Jaw using Shape from Shading and Feature Descriptors, British Machine Vision Conference, (BMVC), vol. 41, pp. 1-11, Aug 2011.
- **M. Abdelrahman**, S. Elhabian, A. Ali and A. Farag, Face Recognition at-a-Distance using Texture, Sparse-Stereo, and Dense-Stereo, Inteprnational Conference on Multimedia Technology (ICMT), pp. 6690-6695, 26-28 July 2011.

- **M. Abdelrahman**, A. Ali, S. Elhabian and A. Farag. Solving Geometric Co-Registration Problem of Multi-Spectral Remote Sensing Imagery Using SIFT-based Features Toward Precise Change Detection. 7th International Symposium on Visual Computing (ISVC). Las Vegas, Nevada, USA, September 26-28, 2011, vol.2, pp 607-616.
- **M. Abdelrahman**, A. Ali, and A. Farag, "Precise change detection in multi-spectral remote sensing imagery using SIFT-based registration," IEEE International Conference on Multimedia Technology (ICMT), pp. 6238 - 6242, July 2011.
- A. Abdelrahim, **M. Abdelrahman**, A. Farag, "Image retrieval based on content and image compression," IEEE International Conference on Multimedia Technology (ICMT), pp. 6696 - 6703 , July 2011.
- A. Farag, S. Elhabian, **M. Abdelrahman**, J. Graham, A. Farag, D. Chen, and M. F. Casanova. Surface Modeling of the Corpus Callosum. Proc. of International Symposium on Visual Computing (ISVC), pp. 9-18, 2010.
- A. Farag, S. Elhabian, **M. Abdelrahman**, J. Graham, A. Farag, D. Chen, and M. F. Casanova. Shape Modeling of the Corpus Callosum. Proc. of the 32nd IEEE Engineering in Medicine and Biology Society (EMBC), pp. 4288-4291, 2010.
- A. I. Saleh ; M. M. Hasan ; A. A. Ali, and **M. Abdelrahman**. "Design Of Different Compensators For Double Integrator Plants ", Journal of Engineering Science, vol. 34, no. 3, PP. 937-958, May 2006.

REFEREE SERVICE
- Reviewer at IET Computer Vision
- Reviewer at IET Biometrics

HONORS AND AWARDS
- Egyptian Engineering Union award 2001.
- 6th October University-Egypt honoring.
- Honorable mention, 5th Annual Graduate Student Research Symposium, March 21, 2013.
- Electrical Engineering Outstanding Graduate Student Award 2013.
- Theobald Scholarship Award 2013.

TEACHING EXPERIENCE

University of Louisville, Louisville, Kentucky USA
- ECE 620: Pattern Recognition
- ECE 619: Computer Vision
  Materials are available at CVIP Lab website
- ECE 550/551: Communications/Lab
- WKU 470/475: Western Kentucky University Communications/Lab.

Assiut University Assiut, Egypt
Helped in teaching the following courses:
- Computer Interface, Microprocessor, Embedded Systems Design, Digital Signal Processing, Digital Circuits Design, Advanced Mathematics, Fuzzy Logic and Neural Networks, and C++ programming.

Helped in advising several graduation projects for B.Sc. students.
- Digital control of DC motor.
- Design of Home Automation system using PIC and PC.
- Controlling of Mixing System using PLC, HMI (2006-2007)

SKILLS

Programming Languages and Toolkits
Compiled: C, C++, C#.
Scripted: MatLab, Maple, Unix shell scripting.
Hardware-level: VHDL, Assembly languages.
Libraries and tools: EMGU (C#), OpenCV (C++), PostgreSQL, Point Cloud Library (PCL), Parallel Programming with CUDA, Visulization Toolkit (VTK)

Others
Presentations preparation skills, Writing skills, Course preparation skills, and Instructing skills.

MEMBERSHIP
- IEEE student member since 2011.

LANGUAGES	Arabic	Mother Tongue
	English	Fluent - TOEFL
	French	Basic