

Curriculum Vitae

Mohammed Abdelsamea

Current position: Lecturer in Computer Science, Mathematics Department at University of Assiut, Assiut 71516, Egypt.

Education

- (2012 – 2015) –Ph.D. in Computer Science and Engineering, IMT Institute for Advanced Studies, Italy.
- (2007 – 2009) –M.Sc. in Computer Science, Mathematics Department, Assiut University, Egypt.
- (2001 – 2005) –B.Sc. in Computer Science, Mathematics Department, Assiut University, Egypt.

Research Interests

My current research interests are in computer vision including

- Machine learning
- Pattern recognition
- Image processing
- Data mining

Research Projects

- (February 2012 – March 2015) –Ph.D. Researcher, Regional Active Contours based on Variational level sets and Machine Learning for Image Segmentation, IMT Institute for Advanced Studies, Italy.
- (February 2012 – March 2013) –Ph.D. Researcher, Phenotyping with a High-throughput, Intelligent, Distributed, and Interactive Analysis System. Pattern Recognition and Image Analysis Unit, IMT Institute for Advanced Studies, Italy.
- (August 2010 – Jun 2011) –Graduate Student Researcher, Quantitative Microscopy of Muscle Remodelling in *Drosophila Melanogaster*. Imaging Informatics Division, A*STAR Bioinformatics Institute, Singapore.
- (February 2010 – May 2010) –Intern, Live-Cell Imaging and Automation of Image Analysis. Imaging Informatics Division, A*STAR Bioinformatics Institute, Singapore.
- (July 2008 – August 2009) –Research Assistant, Medical Diagnostic System for Endemic Diseases in Egypt Using Self Organizing Data Mining. Department of Computer Science, Faculty of Computers and Information System, Assiut University, Egypt.
- (October 2007 – November 2009) –Master Student Researcher, Computer Aided Diagnosis System of Medical Images. Department of Mathematics, Assiut University, Egypt.

Work Experience and Past Positions

- (March 2014 – July 2014) –Visiting Researcher, IDEAS Research Institute, Robert Gordon University, Aberdeen, UK.

- (February 2012 – March 2015) –Ph.D. Researcher, Computer science and Engineering, IMT Institute for Advanced Studies, Lucca, Italy.
- (July 2011 – February 2012) –Assistant Lecturer, Department of Mathematics, Assiut University, Egypt.
- (August 2010 – June 2011) –Graduate Student Researcher, Imaging Informatics Division, A*STAR Bioinformatics Institute, Singapore.
- (February 2010 – May 2011) –Intern, Imaging Informatics Division, A*STAR Bioinformatics Institute, Singapore.
- (July 2008 – August 2009) –Research Assistant, Department of Computer Science, Faculty of Computers and Information System, Assiut University, Egypt.
- (October 2007 – November 2009) –Master Student Researcher, Department of Mathematics, Assiut University, Egypt.
- (December 2005 – February 2010) –Teaching Assistant, Department of Mathematics, Assiut University, Egypt.

Professional Activities

Reviewer for international journals

- Neurocomputing (last reviewed for in Jun, 2015)
- Egyptian Informatics Journal (last reviewed for in May, 2015)
- IEEE Signal Processing Letters (last reviewed for in May, 2014)
- IEEE Transactions on Signal Processing
- IEEE Transactions on Image Processing
- Journal of Selected Topics in Signal Processing
- Journal of Biomedical and Health Informatics
- IEEE Transactions on Audio, Speech, and Language
- IEEE Transactions on Information, Forensics and Security
- IEEE Transactions on Audio, Speech and Language Processing
- Journal of Computers (last reviewed for in March, 2014)

Reviewer for international conferences

- CORES2015 (reviewed 1 paper)
- CBMS2015 (reviewed 1 paper)
- HPCC 2014 (reviewed 3 papers)
- CIBEC 2014 (reviewed 5 papers)

Programme Committee member

- HPCC 2014 (The 16th IEEE International Conference on High Performance Computing and Communications), Paris, France, August 20-22, 2014.
- CIBEC 2014 (The 7th IEEE Cairo International Biomedical Engineering Conference), Giza, Egypt, December 11-13, 2014.

Teaching Experience at Assiut University

- M100: General Mathematics(1)
- M105: General Mathematics(2)
- MC100: Basics of Computer Languages
- MC251: Object-Oriented Programming
- MC252: Data Structures
- MC400: Research Project/Article

Scholarships, Awards and Grants

- 2013 – Erasmus grant for a joint research within IDEAS Research Institute, Robert Gordon University, Aberdeen, UK.
- 2012 – Ph.D. full scholarship, Computer Science and Engineering program, IMT Institute for Advanced Studies, Lucca, Italy.
- 2012 – Qualified for Ph.D. in Computer Science, Verona University, Italy.
- 2011 – Qualified for Ph.D. in Computer Science, Assiut University, Egypt.
- 2010 – Qualified for Ph.D. in Biological Science, National University of Singapore, Singapore.

- 2010 – Singapore International Graduate Award (SINGA), Singapore.
- 2010 – A* Star Singapore International Pre-Graduate Award (SIPGA) for Research attachment in Singapore.
- 2009 – Attendance grant of Oracle database 10g course: Introduction to SQL, Programming with PL/SQL, Administration workshop I Ed3, and Administration workshop II, Oracle University, Egypt.
- 2009 – Attendance grant of User Adoption Services, Eagle Program, Oracle University, Egypt.
- 2006 –M.Sc. full scholarship, Mathematics and Computer Science Program, Mathematics Department, Assiut University, Egypt.

Courses

Ph.D. Courses at National University of Singapore (2010/2011)

- CS5228 Knowledge Discovery and Data mining at the Computer Science Department (Principal lecturer(s): Prof. Anthony K. H. Tung)
- BL5226 Bioimaging at Biological Science Department, Bioimaging Center (Principal lecturer(s): Prof. Paul Matsudaira, Prof. Cynthia He, Prof. Yan Jie, Prof. Yas Sawada, Prof. Thorsten Wohland, Prof. Christoph Winkler (coordinator), and Prof. Sheemei Lok)
- EE5907R Pattern Recognition at Department of Electrical and Computer Engineering (Principal lecturer(s): Dr Ying Sun (Part I) and Prof Yan Shuicheng (Part II)).

Ph.D. Courses at IMT Institute for Advanced Studies (2012/2013)

- Algorithms and their Complexity (Prof. Alberto Lluch Lafuente)
- Basic Numerical Linear Algebra (Prof. Luigi Brugnano)
- Semantics and Formal Methods (Prof. Marzia Buscemi)
- Performance Modeling applied to Computer Networks (Prof. Izhak Rubin)
- Principle of Parallel and Concurrent Programming (Prof. Rocco De Nicola)
- Introduction to Local and Global Optimization (Prof. Fabio Schoen)
- Cloud Computing (Prof. Paolo Ciancarini)
- Model Checking (Prof. Alberto Lluch Lafuente)
- Machine Learning and Pattern Recognition (Prof. Sotirios Tsafaris)
- Optimization II (Prof. Panagiotis Patrinos)
- Computer Programming and Methodology (Prof. Michele Loreti)
- Advanced Topics of DysCo (5th HYCON2-EFFINET PhD School on Networked Control Systems)

Programming Skills

I am familiar with the following programming languages, library functions and tools:

- C/C++, Visual C++, Matlab and Fortran 90
- ITK, VTK and Open CV
- Latex

Publications

Journal Papers

1. M. M. Abdelsamea, G. Gnecco, M. M. Gaber, E. Elyan, On the relationship between variational level set-based and SOM-based active contours, Computational Intelligence and Neuroscience, Volume 2015, 2015. [\[online\]](#)
2. M. M. Abdelsamea, G. Gnecco, A Robust Local-Global SOM-based ACM, Electronics Letters, Volume 51, 22 January 2015, Pages 142-143. [\[code\]](#)

3. M. M. Abdelsamea, G. Gnecco, M. M. Gaber, An Efficient Self Organizing Active Contour Model for Image Segmentation, *Neurocomputing*, Volume 149, Part B, 3 February 2015, Pages 820-835. [\[online\]](#) [\[code\]](#)
4. M. Minervini, M. M. Abdelsamea, S. A. Tsafaris, Image-based plant phenotyping with incremental learning and active contours, *Ecological Informatics*, Volume 23, September 2014, Pages 35-48. [\[online\]](#)
5. M. H. Mohamed, A. Hashem, M. M. Abdelsamea, Scalable Algorithms for Missing Value Imputation, *International Journal of computer Applications*, Volume 87, February 2014, Pages 35-42. [\[online\]](#)
6. M. M. Abdelsamea, An Enhancement Neighborhood Connected Segmentation for 2D-Cellular Image, *International Journal of Bioscience, Biochemistry and Bioinformatics*, Volume. 1, no. 4, November 2011, Pages 256-260. [\[online\]](#)
7. M. M. Abdelsamea, G. Gnecco, M. M. Gaber, A SOM-based Chan-Vese Model for unsupervised image segmentation, submitted to *Soft Computing*, 2015.

Conference Proceedings

1. M. M. Abdelsamea, G. Gnecco, M. M. Gaber, A Survey of SOM-based Active Contours for Image Segmentation, In *Proceedings of the 10th WORKSHOP ON SELF-ORGANIZING MAPS*, 02-04 July 2014, Mittweida, Germany, *Advances in Intelligent Systems and Computing*, Springer (2014). [\[online\]](#)
2. M. M. Abdelsamea, G. Gnecco, M. M. Gaber, A Concurrent SOM based Chan-Vese Model for Image Segmentation, In *Proceedings of the 10th WORKSHOP ON SELF-ORGANIZING MAPS*, 02-04 July 2014, Mittweida, Germany, *Advances in Intelligent Systems and Computing*, Springer, (2014). [\[online\]](#) [\[code\]](#)
3. M. M. Abdelsamea, S. A. Tsafaris, Active contour model driven by globally signed region pressure force. In *Proceedings of the 18th IEEE International Conference on Digital Signal Processing, DSP 2013*, Santorini , Greece 2013. [\[online\]](#) [\[code\]](#)
4. M. M. Abdelsamea. An Automatic Seeded Region Growing for 2D Biomedical Image Segmentation. In *Proceedings of the International Conference on Environment and BioScience*, Singapore 2011. [\[online\]](#)
5. M. M. Abdelsamea. Unsupervised Parallel Extraction based Texture for Efficient Image Representation. In *Proceedings of the International Conference on Signal, Image Processing and Applications, SIA 2011*, Chennai, India 2011. [\[online\]](#)
6. M. H. Mohamed, M. M. Abdelsamea. Self Organization Map based Texture Feature Extraction for Efficient Medical Image Categorization. In *Proceedings of the 4th ACM International Conference on Intelligent Computing and Information Systems, ICICIS 2009*, Cairo, Egypt 2009. [\[online\]](#)
7. M. H. Mohamed, M. M. Abdelsamea. An Efficient Clustering based Texture Feature Extraction for Medical Image. In *Proceedings of the 11th IEEE International Conference on Computer and Information Technology, ICCIT 2008*, Khulna, 2008. [\[online\]](#)

Papers published at Assiut university

1. M. H. Mohamed, Abdel-Rahiem A. Hashem, M. M. Abdelsamea, Data Mining Techniques for Missing Value Imputation, *Journal of Engineering Sciences* vol. 38, no. 4, 2010. [\[online\]](#)

Theses

2. M. M. Abdelsamea, Regional Active Contours based on Variational level sets and Machine Learning for Image Segmentation, *IMT Institute for Advanced Studies*, Ph.D. thesis, March 2015. [\[online\]](#)
3. M. M. Abdelsamea, Computer Aided Diagnosis System of Medical Images, *Mathematics Department, Assiut University*, M.Sc. thesis, November 2009. [\[online\]](#)

Freely available Codes

- **Globally Signed Region Pressure Forces Model** [\[download Matlab code\]](#)

- **Reference:** M. M. Abdelsamea, S. A. Tsafaris, Active contour model driven by globally signed region pressure force. In Proceedings of the 18th IEEE International Conference on Digital Signal Processing, DSP 2013, Santorini , Greece 2013. [\[online\]](#)
- **Concurrent SOM-based Chan-Vese Model** [\[download Matlab code\]](#)
Reference: M. M. Abdelsamea, G. Gnecco, M. M. Gaber, A Concurrent SOM based Chan-Vese Model for Image Segmentation, In Proceedings of the 10th WORKSHOP ON SELF-ORGANIZING MAPS, 02-04 July 2014, Mittweida, Germany, Advances in Intelligent Systems and Computing, Springer, (2014). [\[online\]](#)
- **Self Organizing Active Contour Model** [\[download Matlab code\]](#)
Reference: M. M. Abdelsamea, G. Gnecco, M. M. Gaber, An Efficient Self Organizing Active Contour Model for Image Segmentation, Neurocomputing, Volume 149, Part B, 3 February 2015, Pages 820-835. [\[online\]](#)
- **Local-Global Active Contou Model** [\[download Matlab code\]](#)
Reference: M. M. Abdelsamea, G. Gnecco, A Robust Local-Global SOM-based ACM, Electronics Letters, 2015.