

**Academic history of Arabic OCR of RDI, and principal/co-principal researchers;
Prof. Mohsen A. A. Rashwan and Dr. Mohamed Attia.**

Patents:

- Rashwan, M., Attia, M., "Arabic OCR System"; *A Large-Scale Arabic Omni Font-Written OCR Based on an Analogy with HMM-Based ASR*, Int'l. Patent Application no. PCT/EG2007/000018 under Patent Cooperation Treaty (PCT), Int'l. filing date; May 15th, 2007.

Theses supervised by Prof. Mohsen A. A. Rashwan (ongoing):

- Abass, Y., *Arabic/English Language Identification in Complex Document Images*, PhD thesis, Arab Academy for Science & Technology, and Maritime Transport (AAST-MT).

- Mostafa, M., *Preprocessing and Document Analysis for OCR Systems*, M.Sc. thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department.

Theses supervised by Prof. Mohsen A. A. Rashwan (completed):

- Magdy, W., M., *Improving the Performance of OCR Systems by Fusion and NLP*, M.Sc. thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department, Nov. 2008.

- El-Mahallawy, M., S., M., *A Large Scale HMM-Based Omni Front-Written OCR System for Cursive Scripts*, PhD thesis, Dept. of Electronics and Electrical Communications, Faculty of Engineering, Cairo University, Apr. 2008.

- El-Anwar, R., I., M., *Rule-Based Algorithm for Handwritten Character Recognition*, M.Sc. thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department, Feb. 2007.

- Gouda, A., M., *Arabic handwritten connected character recognition*, PhD thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department, Nov. 2004.

- Hifny, Y., *Online Arabic handwriting recognition*, M.Sc. thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department, 2000.

- Allam, M., A., *Hidden Markov models for recognizing Arabic characters*, M.Sc. thesis, Cairo University, Faculty of Engineering, Electronics & Electrical Communications Department, 1995.

Publications:

- Attia, M., Rashwan, M., El-Mahallawy, M., *Autonomously Normalized Horizontal Differentials as Features for HMM-Based Omni Font-Written OCR Systems for Cursively Scripted Languages*, on IEEE Xplore at: http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5478619: The Proceedings of the IEEE International Conference on Signal & Image Processing Applications (ICSIPA09) <http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5472904>

pp. 185 to pp. 190, Kuala Lumpur - Malaysia
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- Rashwan, M., Fakhr, M., Attia, M., El-Mahallawy, M., *Arabic OCR System Analogous to HMM-Based ASR Systems; Implementation and Evaluation*, Journal of Engineering and Applied Science, Cairo University, www.Journal.eng.CU.edu.eg, Vol. 54 No. 6, pp. 653-672, Dec. 2007.

- Attia, M., El-Mahallawy, M., *Histogram-Based Lines & Words Decomposition for Arabic Omni Font-Written OCR Systems; Enhancements and Evaluation*, Lecture Notes on Computer Science, SPRINGER VERLAG, www.SpringerOnline.com, Aug. 2007.

- El Anwar, R., I., M., Rashwan, M., A., A., Mashali, S., *A Multiple Classifiers System for Solving the Character Recognition Problem in Arabic Alphabet*, XXIII WASET (World Academy of Science, Engineering and Technology) International Conference, August 2007, Berlin-Germany, Volume 23, August 2007 with ISBN (see www.waset.org/proceedings.html).

- Attia, M., El-Mahallawy, M., *Histogram-Based Lines & Words Decomposition for Arabic Omni Font-Written OCR Systems; Enhancements and Evaluation*, The 12th International Conference on Computer Analysis of Images and Patterns (CAIP 2007), hosted by the Vienna University of Technology, and organized by the Pattern Recognition and Image Processing (PRIP) Group; <http://www.prip.tuwien.ac.at/caip07/index.php>, Vienna-Austria, Aug. 2007.

- El Anwar, R., I., M., Rashwan, M., A., A., Mashali, S., *A Multiple Classifiers System for Solving the Character Recognition Problem in Arabic Alphabet*. The 6th Conference on Language Engineering, Dec. 6th-7th, 2006, Cairo, Egypt, Organized by The Egyptian Society of Language Engineering (ESoLE); www.esle.org.

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